The Journal of the American Medical Association

Published under the Auspices of the Board of Trustees

VOL. XLIV. CHICAGO, ILLINOIS, JANUARY 14, 1905. No. 2.

Original Articles.

THE OCULAR SYMPTOMS OF LESIONS OF THE OPTIC CHIASM,

WITH THE REPORT OF THREE CASES OF BITEMPORAL HEMIANOPSIA.*

G. E. DE SCHWEINITZ, A.M., M.D.
AND
JOHN T. CARPENTER, M.D.
PHILADELPHIA.

In order to study the ocular symptoms of lesions of the optic chiasm, the following classification, although somewhat artificial, naturally suggests itself:

1. The anatomic relations and structure of the optic chiasm.
2. Anomalies of the visual field.
3. Ophthalmoscopic changes.
4. Anomalies of the external ocular muscles.
5. Alterations in the pupil reflexes, with special reference to the hemiopic pupillary inaction.
6. The lesions which produce alteration in the structure and function of the optic chiasm and give rise to the ocular symptoms from which their position is inferred.
7. Diseases of the pituitary body, with special reference to the ocular symptoms of acromegaly.
8. Simulation of chiasm disease by other affections, for example, hysteria, locomotor ataxia, brain tumors.
9. The effect of certain toxic agents in causing lesions of the optic chiasm.

ANATOMIC RELATIONS.

Beneath the floor of the third ventricle the optic chiasm rests in the optic groove of the sphenoid bone. Its important anatomic relations are ventrally the sphenoid bone, dorsally the third ventricle of the brain and posteriorly the hypophysis with its prolongation, the infundibulum. The circular venous sinus and the internal carotid arteries, with their anterior cerebral branches, are in close surgical relation to the chiasm.

Microscopic Structures.—As is well known, there has been considerable difference of opinion in regard to the disposition of the fibers in the optic chiasm, whether on the one hand there is total crossing of the fibers, as Michel and von Kölliker believe, or whether, according to the majority of authors, there is, as a rule, a partial decussation. The literature of this subject, often involved and contradictory, has been best analyzed in comparatively recent times by Llewellys Barker,[1] and we can not do better than quote in a somewhat condensed manner from his admirable review as follows:

The long processes, or axones, of the ganglion cells pass into the nerve fiber layer of the retina, reaching the papilla or nervehead, and proceed to the optic nerve. Having reached the optic chiasm, a portion of the fibers of one optic nerve cross over and enter the optic tract of the opposite side, forming the crossed fasciculus, while a certain number of other fibers do not cross, but enter the optic tract of the same side, forming the noncrossed fasciculus. The noncrossed fasciculus arises chiefly from the temporal side of the retina, while the crossed fasciculus arises from the ganglion cells of the nasal side of the retina. The bundle of the macula lutea, or papillo-macular bundle, in general terms, is situated in the central part of the optic nerve and maintains its central position in the optic chiasm and in the optic tract, and is composed of crossing and direct fibers.

Now, although secondary degenerations observed in pathologic cases in higher animals and in human beings seem to prove a semi-decussation and not total crossing of the optic chiasm, and although von Gudden has shown that in the rabbit, where the decussation is almost total, there is a small non-crossed fasciculus and that total decussation is present only in such animals in which the visual fields of the two eyes are entirely separate, for example, in fish, amphibia and birds, von Michel asserts that even in man the decussation is complete or total. He bases his opinion on serial sections of the normal optic chiasm, on sections of the optic nerves, chiasm and tracts, in cases of degeneration in men and animals; and on certain physiologic considerations.

Apparently, however, his views are not tenable when taken into consideration with the great mass of evidence which has accumulated on the opposite side. Von Gudden, with careful consideration of the superior commissure of Meynert, the inferior commissure of Gudden, and the hemispheric bundle, has demonstrated by unobjectionable methods, that each of these, as well as the crossed fasciculus and the non-crossed fasciculus, can be individually isolated. He has shown that the well-known experiments of Nicati, by which the optic chiasm was cut in the middle through the mouths of cats, demonstrate that these cats could still see, which would be difficult or impossible to explain if the decussation was total, and in Siemerling's case of destruction of one optic tract with diminished sharpness of the opposite eye, the patient could still see with the temporal side of his retina, also an impossiblity if complete decussation had been present.

Finally, we come to the studies of Henschen, based on elaborately studied and collected clinical material. According to this observer, whose views are accepted by almost all modern writers on the subject, the following is the arrangement of the fibers in the chiasm: The macular fibers, both crossed and uncrossed, are axial in situation, the crossed bundles being central while the uncrossed bundles are found medial and lateral. The papillo-macular bundle, although mainly axial, almost reaches the periphery behind the center of the

* Read in the Section on Ophthalmology of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

1. The Nervous System and Its Constituent Neuroses, 1899, p. 782.

where the crossing fibers are exposed to injury by a circumscribed lesion in the median line. The fasciculus cruciatus from each optic nerve is found on the dorsal and ventral aspects; while the *fasciculus non-cruciatus* is found medial and lateral.* In addition, the chiasm at its posterior angle contains two sets of commissural fibers not concerned in vision—the superior commissure of Meynert and the inferior commissure of von Gudden.

While it is undoubtedly true that this represents the usual anatomic arrangement in the chiasm, individual differences of great variety are possible, and indeed, have been found, varying from the entire absence of the chiasm (the right optic nerve going to the right tract and the left nerve to the left tract), to perhaps total decussation in the chiasm. (Fig. 1.)

ANOMALIES OF THE VISUAL FIELD IN CHIASM DISEASE.

The literature of this subject is extensive, and although we have examined it with some thoroughness and carefully analyzed between forty and fifty of the most important papers, it does not seem profitable in a communication of this character to do more than present a condensed statement of the possibilities in visual field changes without detailed reference to individual cases. Moreover, the entire subject has been dealt with in so masterly a manner by Wilbrand[2] that it would be impossible to avoid quoting him as freely as we have in the section which follows:[3]

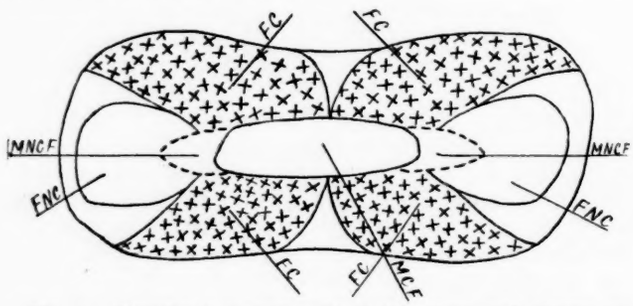


Fig. 1.—Henschen's arrangement of the fibers and chiasm according to Barker: f. c., crossed fasciculus; f. n. c., uncrossed fasciculus; m. n. c. f., macular non-crossing fibers; m. c. f., macular crossed fibers.

Complete Bitemporal Hemianopsia.—The most characteristic alteration of the visual field which may be regarded as pathognomic of chiasmal lesion is bitemporal hemianopsia, which, with its various modifications, is called by Griffith "the localizing form of hemianopsia." In a typical example there is blindness of the temporal halves of the visual field, with preservation of the normal function of the nasal halves, the dividing line making a sharp, vertical separation between the two portions of the field of vision. (Fig. 2). Instead of loss of the temporal field exactly to the fixation point, a portion of the field may be retained beyond this position, i. e., the line of separation does not lie in the vertical meridian.

This "over-shot field of vision," as it has been called, suggests the supply of the macula with a double set of nerves, one from each hemisphere, and has been explained by Schmidt-Rimpler by assuming anastomoses of the fibers in the optic nerves and chiasms. An interesting fact is the occasional long unchanged duration of bitemporal hemianopsia, as in Förster's[4] case, where with complete loss of the temporal fields those on the nasal side remained unaltered for ten years. In these typical cases, not only does the nasal field for form remain unchanged, but the color-limits of the same sides are also preserved and coincide with the vertical separation. The temporal field defect is not necessarily complete *ab initio;* it may begin with loss for colors only, to be followed later by loss of form sense and light sense, or the form sense and color sense may be lost, and the light sense retained entirely or in part.

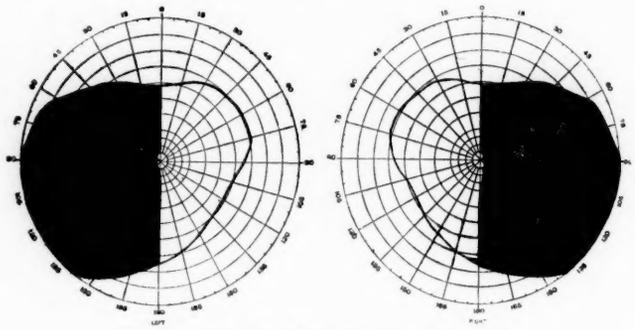


Fig. 2.—Typical bitemporal hemianopsia.

Again, the process may begin with paracentral or bitemporal hemianopic scotomas, which gradually broaden into bitemporal hemianopsia. Such cases, according to Wilbrand, have been reported by Beer, Förster, and Vossius.[5] In the last-named author's case, the condition began with bilateral temporal contraction of the visual fields and paracentral scotomas, and was followed by sharply limited bitemporal hemianopsia (Fig. 3).

Finally, the original condition of bitemporal hemianopsia may change and result in symmetrical paracentral hemianopic scotomas, as in Treitel's[6] case, which is quoted by Wilbrand. (Fig. 4).

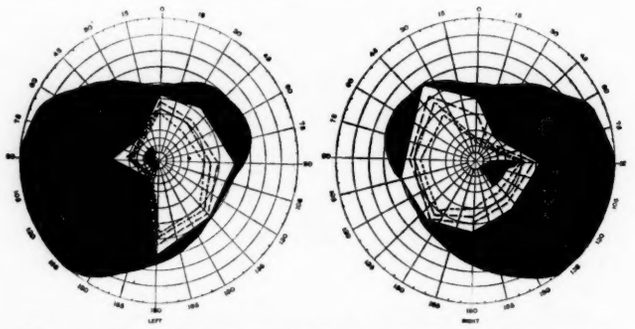


Fig. 3.—Bitemporal contraction of the visual fields and paracentral scotomas, followed later by bitemporal hemianopsia, after Vossius.

Significance: Typical bitemporal hemianopsia of permanent character is caused by a lesion which destroys the function, or, as it is called, the conductivity of both crossed fasciculi, leaving the non-crossed fasciculi unaffected. The best reported case of this character has been recorded by Weir Mitchell and Dercum,[7] in which

*A somewhat different arrangement of the chiasm fibers is given by Wilbrand and Saenger, Neurologie des Auges, vol. iii, p. 79.

2. Perimetry and Its Clinical Value: A System of Diseases of the Eye, edited by Norris and Oliver, vol. ii, 1897, pp. 262-278. See also by the same author, Die Hemianopischen Gesichtsfeld-Formen und das optische Wahrnehmungszentrum: Wiesbaden, 1890. Since writing this paper Die Neurologie des Auges., vol. iii, 1904, by Wilbrand and Saenger has appeared. It has not been possible to incorporate the superb studies of chiasm diseases contained in its pages.

3. See also Das Gesichtsfeld: Karl Baas, 1896, p. 216.

4. Graefe und Saemisch, Handbuch der gesammten Augenheilkunde, vol. vii, p. 116.

5. Graefe's Archiv f. Ophthalmologie, vol. xxx, 3, p. 172.

6. Centralbl. f. prakt. Augenheilk., 1881, p. 320.

7. Jour. Nervous and Mental Disease, vol. xiv, 1889, p. 44.

an aneurism destroyed the center of the chiasm and obliterated the function of the crossed fasciculi. Paracentral or hemianopic scotomas indicate that the lesion is confined to that point on the dorsal surface of the chiasm where the papillo-macular fibers of the crossed fasciculus are interwoven.

Bitemporal hemianopsia subject to fluctuations in the extent of the visual disturbances depends on the basal disease, especially syphilis, as has been pointed out by Oppenheim.[8] Improvements, even to complete recovery, may be followed by subsequent loss of vision. In such a case as Treitel's, previously quoted (See Fig. 4), Wilbrand suggests that a basilar gummatous meningitis may have injured the crossed fasciculus, while an interstitial neuritis may have caused atrophy at the intersection of the papillo-macular fibers.

In this connection we briefly refer to two cases of bitemporal hemianopsia with autopsy:

BASAL GUMMA AND BITEMPORAL HEMIANOPSIA.

CASE 1.—This case one of us (de Schweinitz[9]) has already reported briefly.

History.—The patient, a colored man, in the wards of Dr. H. C. Wood in the Philadelphia Hospital, was a syphilitic aged 55, who had epileptic attacks, Jacksonian in type, partial loss of hearing on one side, demonstrable loss of taste and smell, partial hemianesthesia and hemiplegia. Wernicke's pupil symptom could not be demonstrated. Both nerves were atrophic, and there was complete bilateral temporal hemianopsia,, with marked contraction of the preserved fields (Fig. 5).

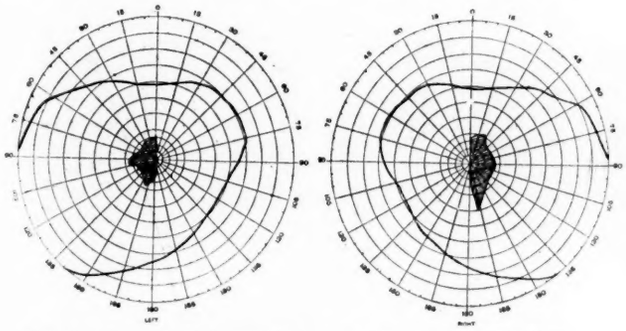


Fig. 4.—Symmetrical paracentral scotomas, after Treitel.

Autopsy.—At the postmortem examination a band-like gumma was found which stretched across the anterior end of the pons and reached to the cribriform space. One end of the tumor was thicker and heavier than the other. The corpora quadrigemina and optic tract and chiasm were involved. Microscopic examination was not made.

TUMOR OF CHIASM; METASTASIS FROM MAMMARY CARCINOMA; BITEMPORAL HEMIANOPSIA.

CASE 2.—This patient, a woman between 50 and 60 years of age, was examined by one of us (de Schweinitz) in consultation with Drs. Tyson and Mills, who will report the case in detail. It is now referred to as a typical example of temporal hemianopsia in which a growth secondary to a carcinoma of the breast was situated at the base of the brain and involved in the chiasm. The visual fields (Fig. 6) indicate that the crossed fasciculi were divided. Dr. Spiller's examination of the specimens is as follows:

Autopsy.—The findings in the chiasm of Mrs. G. are as follows: The sella turcica was much enlarged and was about one and one-half inches in width from side to side, and about one inch from before backward. A large tumor mass filled the sella turcica, and the tumor was larger on the left side than on the right. The tumor extended around the optic chiasm and grew from behind it, and extended backwards almost as far as the anterior part of the pons. The right optic nerve was not imbedded in the tumor, but the tumor grew into the left orbit and surrounded the left optic nerve.

Microscopic Examination.—This showed that the tumor was a carcinoma, and that the optic chiasm was much degenerated by the invasion of and pressure from the tumor.

Temporal Hemianopsia of One Eye and Partial or Complete Blindness of the Opposite Eye.—Partial or complete blindness of one eye, with loss of vision in the temporal field of the opposite eye, has been reported a number of times. Thus there may be temporal hemianopsia of one eye, with entire loss of vision in the opposite eye, except in its upper or lower nasal quadrant; or the loss of vision in the opposite eye may be complete for color or form, but partially retained for light in one nasal quadrant; or, finally, the loss of vision in the opposite eye may be absolute. Cases of this character have been reported by Hirschberg, Lang and Schoen.

Significance: Under these circumstances the clinical picture is significant of a spreading lesion gradually involving the entire chiasm. Thus, if the upper or lower quadrant of the nasal field of the opposite eye is lost, in addition to its temporal blindness, it means that the disease has spread to the areas of the chiasm represented by the loss of visual function.

In this connection we record the following case already briefly reported by one of us (de Schweinitz[10]).

CASE 3.—A man, aged 34, clerk, American by birth, presented himself on Nov. 3, 1903.

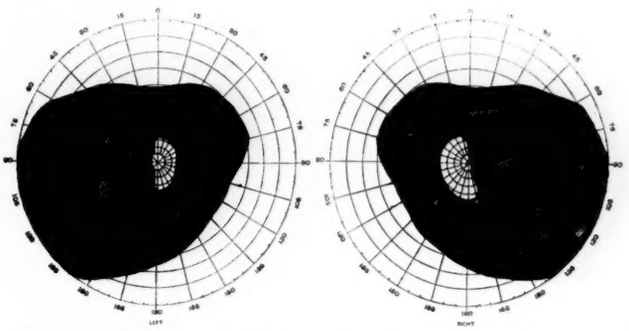


Fig. 5.—Bitemporal hemianopsia and contraction of preserved visual fields from a patient under care of H. C. Wood. The lesion was basal gumma.

History.—The patient's father and mother are living, as also are four brothers and one sister, all of whom are in good health and have no organic defects of vision. Since an attack of dysentery at the age of 2 he has enjoyed good health, history of severe illness being absent. In 1883 he fell from a horse and was injured on the forehead over the left eye, but the skull was not fractured, so far as is known. The patient has led a healthful life, has no drug habits and denies venereal taint of any kind. His eye sight gave him no concern until seven years ago, when it began to fail, first on the left and later on the right side, the defect in vision being manifest by loss of the visual field on the temporal sides. There was never at any time pain, headache or signs of ocular inflammation.

General Examination.—The patient was undersized, but well nourished and presents all of the physical signs of infantilism of the myxedematous variety. With this exception, examinations made by us, as well as by other physicians, failed to find signs of organic disease. The urine was normal.

Examination of Eyes.—The eyelids were slightly puffy, and there was a moderate conjunctivitis of the left eye. V. of R. E. with + 0.75 sph. 6/7.5; amplitude of accommodation, 6 D. The optic nerve was ophthalmoscopically a narrow, vertical oval and atrophic, being bounded on its outside by a widened

8. Mills, Univ. of Penn. Med. Bulletin, May, 1904, p. 110.

9. Jour. of Nervous and Mental Disease, vol. xiv, 1887; also Nervous Diseases and Their Diagnosis, by H. C. Wood, p. 271.

10. Ophth. Record., vol. xiii, 1904.

scleral ring; the veins were rather fuller than normal and were faintly streaked with white lines; the arteries were unchanged in size, both sets of vessels carrying normally tinted blood. Distinct evidences of neuritis were lacking and there were no gross changes in the retina or choroid. The visual field for form and colors exhibited the typical chart of temporal hemianopsia, the preserved form field (1 cm. square of white) being normal in extent, while the color fields (red and green) are markedly contracted, the dividing line exactly following the vertical meridian, the macular representation being in the preserved field (Fig. 7). The light field was preserved, except the upper and outer quadrant, which was entirely dark. The direct light reflex of the pupil was preserved, the consensual reflex absent, and the hemiopic pupil inaction (Wernicke's sign) could not be demonstrated, although the response was not so prompt when the light was directed on the blind side of the retina as when it fell on the opposite side.

V. of L. E. was *nil*, light perception being absolutely lacking. The optic disc ophthalmoscopically was small, round and entirely atrophic, but there was no marked decrease in size of the retinal vessels, and as on the other side, no distinct signs of a previous neuritis. The direct light reflex of the pupil was, of course, absent; the consensual reflex preserved;

Examination of Nose and Throat.—Examination of the rhino-pharynx and sinuses by Dr. Walter Freeman yielded negative results, who writes: "I find no evidences of sinus or nasal disease which could account for the eye trouble; I believe the sphenoids and ethmoids are normal."

Examination of the Head.—Examinations of the cranium by means of the *x*-rays were made by Dr. Henry Pancoast at the Hospital of the University of Pennsylvania, and the skiagraphs showed a shadow directly in the position which would be occupied by the chiasm, which shadow was not present in a skiagraph of the normal head, kindly loaned by Dr. Pancoast.

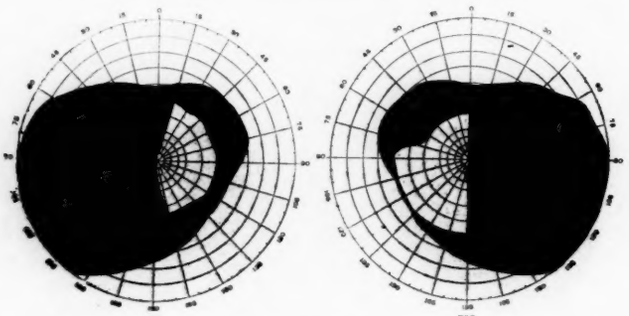


Fig. 6.—Bitemporal hemianopsia; tumor involved chiasm.

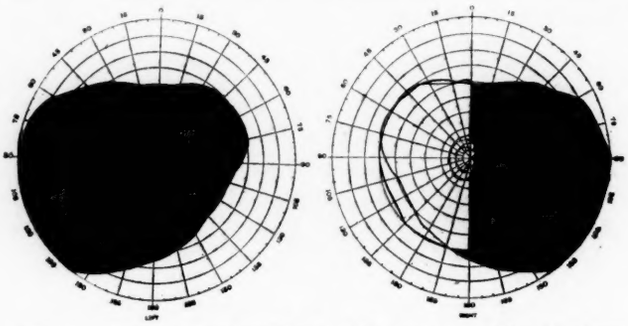


Fig. 7.—Temporal hemianopsia of right eye; complete blindness of left eye.

Remarks.—In the present instance we evidently had to deal with a case which was originally bitemporal hemianopsia, because the patient's statement accurately described the loss of the temporal side of each visual field as his first visual disabilities. Gradually the degeneration of the optic nerve continued, until on the left side the blindness became complete, and there is now temporal hemianopsia of the right eye for form and color and with a partial retention of the light sense, that is to say, it is preserved in the lower temporal quadrant and completely on the nasal side. In other words, we had here a very good example of a spreading lesion, so that only the nasal field of one eye remains perfect.

As to the probable lesion, three possibilities may be named, and in studying them we have had the advantage of Dr. William Spiller's examinations, who saw the case in consultation: 1, Myxedematous enlargement of the pituitary body; 2, as the patient once suffered from tapeworm, cysticercus of the chiasm; 3, aneurism or tumor at the chiasm.

What the exact lesion is is purely speculative, except there can be no doubt that the optic chiasm is involved. Sphenoid disease, which we first thought of, seems to be eliminated by Dr. Freeman's report. Dr. Pancoast's skiagram seems to show a shadow approximately in the region of the chiasm, a shadow, moreover, which is abnormal and which may indicate a growth, for example, an exostosis. Naturally, the injury which this patient received when he was thrown from a horse suggests the possibility that there may have been a fracture extending into the sphenoid bone. It is, however, difficult to accept this explanation in view of the fact that the injury occurred twenty years ago, while his visual defects were noticed only seven or eight years ago. Specific history is denied and there was no response to antisyphilitic treatment. He seems to have improved slightly in his general condition under the influence of thyroid extract. There has been no change, however, in the visual defects and also no progression.

Bitemporal Achromatopsia with Central Scotoma for Colors.—As already noted, the defect in the temporal fields may begin with loss for colors only, followed later by loss of form and light sense. In a case reported by Benson,[11] in addition to a bitemporal defect for colors, there was a scotoma for colors. The patient had acromegaly and was an excessive smoker. Sometimes, it would seem, there may be simply scotoma for color on one side, for example, in Doyne's case,[12] while on the other the scotoma is absolute.

Significance: In these hemiachromatoptic cases we may assume the interference in the conduction of the fibers involved has been sufficiently great only to lead to an inability to recognize colors, for example, red and green. Greater disturbance would lead to inability to recognize blue. As the power of conductivity grows less and less perfect, the patient gradually fails to distinguish black from white, and finally when it is lost the perception of light is lost.[13]

Chiasmal Central Amblyopia.—The development of bitemporal hemianopsia from symmetrical paracentral scotomas has been described. But it would seem that central scotomas, very difficult to distinguish from those seen in toxic amblyopia, are sometimes the initial signs of chiasm disease. According to Nettleship,[14] "the loss of the central field in the earlier stages is more abruptly defined than in tobacco amblyopia, and the symmetry is less precise, both in time and degree than in the latter disease." In one case in which a postmortem examination was obtained and the chiasm incorporated in a cyst, there was a central scotoma of oval shape, beginning just outside the fixation point, and extending twenty degress outward; the peripheral fields were intact.

Irregular Losses in the Visual Field.—A number of case records have been published describing irregular losses of portions of the visual fields. To some of these reference has already been made. Wilbrand has arranged them as follows: Temporal hemianopsia of one

11. Brit. Med. Journ. October, 1895, p. 949.
12. Trans. Ophth. Soc. U.K., vol. xv, 1895, p. 134.
13. Consult Holden, Archives of Ophthalmology, vol. xxiv, 1895, p. 447.
14. Ophth. Rev., vol. xv, 1896, p. 309.

eye with loss of the upper outer quadrant of the visual field in the other (Schoen); temporal hemianopsia in one eye, in the other loss of the lower outer quadrant of the nasal visual field (Lang); loss only of the upper and outer quadrants of both fields; loss only of the lower and outer quadrants of both visual fields; loss of both visual fields, except their upper nasal quadrants which remained active; finally, loss of both visual fields, except their lower nasal quadrants which remained active is conceivable, although no such case has been reported. These irregular types of visual field defects are due to circumscribed lesions affecting small bundles of fibers in the chiasm. It is again to be noted that irregular losses of the visual fields with transient and varying types of bitemporal hemianopsia usually mean syphilitic meningitis, or gummatous involvement of the chiasm, in which recovery of vision often results from the administration of iodids or mercury.[15]

Binasal and Unilateral Nasal Hemianopsia.—Cases of binasal hemianopsia occur with comparative infrequency. The literature has been analyzed by Veasey,[16] who makes reference to nineteen cases, but who also includes in them cases of unilateral nasal hemianopsia of the bilateral form of the disease as it is seen in spinal cord disease. The subject has also been discussed by S. M. Burnett,[17] who reports a good example of this affection.

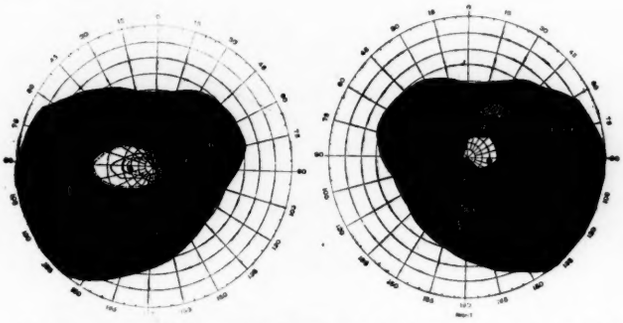


Fig. 8.—So-called binasal hemianopsia in hysteria, really simply an irregular contraction of the visual field. Patient under care of J. K. Mitchell and G. E. de Schweinitz.

Significance: The true chiasmal variety of the affection must be rare, if, indeed, it actually occurs. In Knapp's case it was ascribed to degeneration of the arteries of the corpus calosum, causing disease of the lateral angles of the chiasm. Burnett suggests as possible lesions in his case, in which the hemianopsia followed a fall on the forehead and remained unchanged for more than three years, a clot, or pathologic process set up by it, making pressure on the outer side of the right nerve trunk, and passing either above or below this trunk to the other side, without affecting intervening tissue, and there pressing on the temporal side of the left nerve. A double lesion affecting only the temporal supply-fibers in the tracts is also suggested as possible. Burnett himself recognizes, however, the difficulty surrounding the hypothesis he suggests. The irregularity of the remaining fields in most cases of binasal hemianopsia, as well as microscopic examinations which have been made, indicate that visual field phenomena are caused by optic nerve lesions. Thus, Gowers, commenting on Eales's case, suggests as an explanation bilateral inflammation of the trunks of the optic nerves in front of the chiasm, extending to this, and chiefly intense symmetrically at each side of the chiasm. Veasey accepts this explanation as most suited to his case.

A nasal hemianopsia on one side is produced by a lesion affecting the lateral portion of the chiasm involving the non-crossing fibers of one eye. Blindness of one eye and nasal hemianopsia of the other can not be explained by a single lesion. In Henschen's case the chiasm and optic tract were so involved that only the crossed fasciculus of one eye remained comparatively unaffected.

Bilateral Blindness of Chiasmal Origin.—Total loss of vision and of the pupillary reflexes in both eyes, followed in several weeks by bilateral optic nerve atrophy, is possible. Under such conditions we must assume that a lesion has divided the chiasm into an anterior and posterior portion and destroyed the conductivity of the lateral as well as the crossed fasciculi of both sides.

Superior and inferior hemianopsia have been described, and would indicate disease of the upper half of the chiasm, or, as in Uhthoff's case, symmetrical disease of the optic nerves.

OPHTHALMOSCOPIC CHANGES.

Following a destructive lesion affecting the optic chiasm, the ophthalmoscope usually reveals bilateral

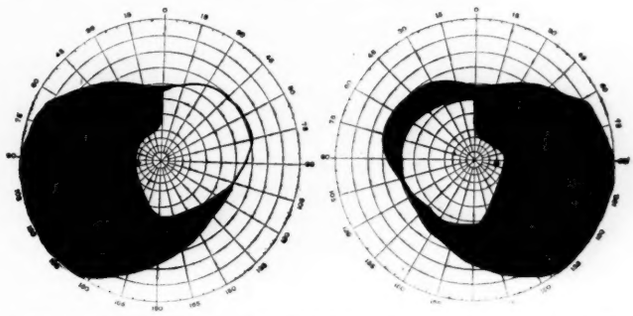


Fig. 9.—Bitemporal visual field defects in locomotor ataxia. Patient under care of G. E. de Schweinitz.

atrophy from descending degeneration. Partial atrophy of the optic disc results from circumscribed destruction of fasciculi of fibers on their passage through the chiasm. All grades of optic neuritis may be found with disease at the base of the brain involving the optic chiasm, varying from slight veiling of the edges to typical choked disc, but optic neuritis is not often found in chiasmal disease, even when produced by cerebral tumors. A reference to the report of the conditions of the eyegrounds in some fifty cases of disease of the chiasm show the following fundus changes, which can be conveniently grouped:

(*a*) Optic atrophy without preceding neuritis.

(*b*) Postneuritic atrophy.

(*c*) Atrophy of the temporal half of the nerve (partial atrophy).

(*d*) Slight optic neuritis as revealed by blurring of the disc edges.

(*e*) Well-marked optic neuritis and neuroretinitis with or without retinal hemorrhages.

(*f*) "Choked discs."

In one case mentioned by Hutchinson[18], the ophthalmoscope shows retinal arteries and veins diminished, retina white and hazy with many hemorrhages.

15. Just as this section was completed the third volume of Wilbrand and Saenger's "Die Neurologie des Auges." has come to hand, in which there is a most complete discussion of the visual field phenomena which would follow variously placed chiasm lesions.

16. Ophth. Rec. February, 1897.

17. Arch. of Ophth., vol. xxix, 1900, p. 1.

18. Ophth. Review, 1889.

It is important to remember that although central vision in most cases of bitemporal hemianopsia is lowered (rarely normal acuity of sight has been preserved), and that the final stage of chiasmal disease is apt to be total blindness with atrophic discs, occasionally, even after blindness has appeared, as Wilbrand remarks, nearly normal power may return.

ANOMALIES OF THE EXTERNAL OCULAR MUSCLES.

Chiasmal diseases may be accompanied by paralysis of nearly all the motor and sensory nerves of both eyes. The progress of the lesion can at times be closely followed by the successive involvement of the cranial nerves running to the orbit. Anosmia indicates the extension of the lesion forward; bilateral hemianopsia followed by unilateral blindness and paralysis of the cranial nerves entering the orbit of that side shows the extension of the disease toward the right or left side of the chiasm. The third nerve is most frequently affected.

ALTERATIONS IN THE PUPIL REFLEXES WITH SPECIAL REFERENCE TO THE HEMIANOPIC PUPILLARY INACTION.

The production of complete blindness by chiasmal disease gives the usual loss of direct pupil reaction. Most reporters have failed to note the presence of the hemianopic inaction.

In some forty cases referred to by the authors, whose reports we have examined, this inaction was noted in but four cases. The usual note was "pupil dilated and sluggish," or "unresponsive to light, react to convergence."

The hemianopic pupillary inaction has been unquestionably present in some cases and no doubt would have been found if more carefully looked for in many more cases of disease of the optic chiasm. It is a symptom difficult to elicit and its existence has been denied by some authors. Even Bach, with his large experience and skill, has not observed it, although he does not deny that it may occur.

LESIONS WHICH MAY PRODUCE ALTERATIONS IN THE STRUCTURE AND FUNCTION OF THE OPTIC CHIASM.

From a consideration of the anatomic relations of the chiasm, we may divide these lesions as follows:

1. Those which affect the chiasm from below. These include trauma, for example, fractures of the sphenoid bone, exostoses, basilar, gummatous and tubercular meningitis, periostitis, arterial disease, aneurism, syphilitic arteritis and hemorrhage, and tumors of the sphenoid bone.

2. Lesions which encroach on the chiasm from above. These include tumors of the third ventricle and distention of the floor of the third ventricle in internal hydrocephalus.

3. Lesions which affect the posterior angle of the chiasm. These include tumors and hypertrophy of the pituitary body—notably in acromegaly. To this frequent cause of chiasmal disease a more extended reference is made in a succeeding paragraph.

4. The lesions of multiple sclerosis. Cases of this character have been reported by Snell, Taylor, Uhthoff, Spiller and other authors.

5. The lesions of tabes dorsalis. Cases of this character have been reported by Gowers, Uhthoff, Popow, Moxter and Benedict.

The chiasmal symptoms in these cases may be due to syphilitic basilar lesion, and not to interstitial inflammation of the chiasm, as Gowers states. This author also includes as a possible cause of chiasmal disease interstitial inflammation from inherited gout. Interstitial hemorrhage has been reported. Swanzy states that tumors of the cerebellum, by closure of the aqueduct of Sylvius, may produce internal hydrocephalus and cause pressure upon the chiasm.

The above summary comprises the results of careful study of the literature for reports of postmortem findings in somewhat more than one hundred published papers.

ACROMEGALY.

As is well known, acromegaly is a frequent cause of bitemporal hemianopsia, and this visual field defect, to use the language of Swanzy, is one of the commonest and earliest symptoms of this affection. It does not seem necessary to do more than make the briefest reference to the facts in the case. According to Hinsdale, the bitemporal hemianopsia in acromegaly is caused by an overgrowth or neoplasm of the hypophysis pressing on the chiasm, and by bony changes consequent on the abnormal growth of the lesser wing of the sphenoid bone. It may occur as a bilateral defect, as an unilateral defect, either right or left sided, and in two instances, at least, has appeared in the form of a nasal hemianopsia.

While it is true that the bitemporal variety of the visual field defect is the one most commonly observed, homonymous hemianopsia has also been noted by several observers. One of them (de Schweinitz) has examined a case of this character for Dr. Dulles of Philadelphia, and he has also seen and examined two other cases with typical bitemporal hemianopsia, one in the service of Dr. H. C. Wood at the University Hospital and the other in his own practice.

SIMULATION OF CHIASM DISEASE BY OTHER AFFECTIONS.

Hysterical Hemianopsia.—There is much difference of opinion whether hemianopsia ever occurs as an ocular stigma of hysteria. Parinaud maintains that there is one variety of visual insensibility which hysteria appears to be incapable of producing, and that is hemianopsia in the sense in which this term is used in organic cerebral lesions, and this opinion apparently is shared by Charcot, Gilles de la Tourette, Gowers, Freund, Binswanger and others. On the other hand, Rosenthal[19] states that in all cases of hysterical amblyopia which he has investigated temporal hemianopsia was present[20]. Lateral non-crossed hemianopsia in hysteria has been recorded by a number of observers, for example, Bonnefoy, Westphal, Galezowski, M. W. Zimmerman and Henry Lloyd.

So far as we are able to judge from a critical examination of the literature, hemianopsia as an enduring ocular symptom of hysteria does not exist. On the other hand, as a temporary phenomenon it has been observed a good many times by those who are competent to judge, and has appeared, as already noted, as a bitemporal defect, a homonymous lateral defect, and even, it would seem, as a binasal obscuration. It is possible, according to Pierre Janet[21], that there may always be a period of hemianopsia when the ordinary hysterical amaurosis is recovering.

A similar observation was made by Galezowski and Daguenet prior to his publication, who have also noted

19. Wiener Med. Presse, Nr. 23, 1879, p. 736.

20. In Gilles de la Tourette's book Rosenthal is quoted as having written a letter to Charcot in which he retracts this statement, saying that hysterics exhibit only amblyopia and concentric contraction of the visual field.

21. La Presse Medicale, 1899, p. 243.

a transitory scotoma. Hirsh[22] describes hysterical blindness in a boy of thirteen. After return of sight, there was high grade contraction of the visual field, which gradually widened and showed a temporary bitemporal hemianopic character. Unilateral temporal hemianopsia has been described in hysteria by Landesberg[23] Wilfred Harris in his Cambridge Thesis[24] refers to two cases of hysterical binasal hemianopsia, one of temporary character reported by D. B. Lees, the other published by J. K. Mitchell and de Schweinitz. It is true they somewhat incautiously made use of the expression that the visual fields had the character of binasal hemianopsia, but they are quite sure they should be regarded simply as an unusual form of bilateral contraction. (Fig. 8.)

Bilateral Temporal Field Defects in Locomotor Ataxia.—As Gowers has pointed out, symptoms of a local lesion in the chiasm may occur in rare instances of tabetic atrophy. In one case which he has recorded the characteristic visual defect appeared suddenly. Popow[25] has examined in cases of ataxia the chiasm and found foci of degeneration. But the visual field changes in tabes dorsalis may simulate chiasm disease, when, in all probability, the chiasm itself is unaffected. It is probable that tabetic atrophy of the optic nerve may depend in part on disease and disappearance of the retinal ganglion cells. Should such disappearance occur on suitably situated symmetrical areas, symmetrical temporal field defects might follow. (Fig. 9.) It will be observed in a case which one of us (de Schweinitz) has observed, that although there is a form of bitemporal hemianopsia, the dividing line is irregularly placed and this in all probability would be a notably distinguishing, although not pathognomonic difference between ataxic and the chiasm-disease visual field.

Bilateral Temporal Field Defects in Brain Tumors Unconnected with the Chiasm.—As well recognized causes of bitemporal hemianopsia are basal tumors, and especially tumors of the pituitary body. But it should be remembered that a growth at a distance from the chiasm may occasion similar signs. As Swanzy, Gowers and others point out, a tumor of the cerebellum by closure of the aqueduct of Sylvius may produce internal hydrocephalus and thus exert pressure on the chiasm. So far as we are aware, bitemporal hemianopsia has never been observed as has cortical hemianopsia as a distant symptom. It is possible, however, that destruction of areas of retinal ganglion cells in cases of the choked discs of non-basilar cerebral tumor might give rise to bitemporal binasal visual field defects, but in such a case there would of necessity be marked irregularity in the line dividing the visual fields.

A brief reference to the lesions of the chiasm in multiple sclerosis has been made.

SYMPTOMS OF CHIASM DISEASE CAUSED BY CERTAIN TOXIC AGENTS.

We have already referred to central amblyopia and central scotoma as a sign of chiasm disease, and how such a scotoma may be difficult to distinguish from that produced by toxic amblyopia. One of us (de Schweinitz[26]) has published the results of microscopic examination of the optic nerves, chiasm and tracts from a typical case of so-called tobacco amblyopia with characteristic and intact visual fields. Degenerated patches are evident, occupying symmetrical positions in about the situation of the non-crossing macular fibers and leaving the remainder of the chiasmal structure intact.

Necessarily, they give no evidence of their existence except in the central scotomas. According to Westphal and Elschnig, optic neuritis with bitemporal hemianopsia has been observed as an ocular symptom of lead poisoning.

Homonymous lateral hemianopsia has been occasioned by illuminating gas toxemia, as reported by Purtscher and H. Friedenwald, but not the bitemporal variety of this form of the affection. Raffegean observed in a case of carbonic acid poisoning inferior hemianopsia dependent on a certain degree of interstitial neuritis of the optic nerves.

CONCLUDING REMARKS.

In the presence of typical bilateral hemianopsia, which, as we have before remarked, quoting the words of Griffith, may be regarded as the localizing form of hemianopsia, it is practically impossible to make a mistake, and the lesion must necessarily be, as already stated, one which destroys the conductivity of the crossed fasciculi, leaving the non-crossed fasciculi intact. When one comes to consider, however, the numerous irregularities in the visual field which may be present in chiasm disease, its existence can not always with safety be inferred from them without elaborately repeated examinations.

As Wilbrand has remarked, the chiasm with both tracts and the other intracranial portions of both optic nerves may be surrounded by diseased processes, particularly of a gummatous nature, and irregular defects of the field of vision result, from which a correct diagnosis would be difficult. Much depends on the method of examination and the degree of the destruction of the light sense. A careless examination might fail to develop a temporal field defect which a more careful one, conducted under diminished illumination, or using gray squares placed on white cardboard, would develop. On the other hand, an examination with a very bright light, for example, such as one uses in an electric perimeter, might reveal an intact visual field on the temporal side, good light sense being preserved, while it would be absent for form or colors.

Finally, the fact that a scotoma may be the beginning of a visual-field defect which will eventuate in a bitemporal hemianopsia and be significant of chiasm disease, should not be forgotten, and, moreover, a scotoma which to careless examination would seem to indicate simply papillo-macular bundle involvement and not involvement of the intermingling of the papillo-macular fibers in the chiasm.

The evident conclusion of the whole matter is that, in a large number of cases of optic nerve atrophy, the most elaborate examinations should be made by all known tests, under all degrees of illumination, and with all types of saturated colored squares, in order to eliminate or prove the presence of chiasm disease. We strongly suspect that there are a fair number of optic nerve atrophies on record, and, naturally, a much larger number in examination, which, if these precautions had been observed, would have yielded a larger percentage of chiasm disease than now seems indicated by the reports.

DISCUSSION.

DR. CASEY A. WOOD, Chicago, stated that for a number of years he has suspected that those curious cases of aversion to

22. Munch. med. Wochenschr., Nr. 13, 1903, p. 58.
23. Jour. of Nervous and Mental Disease, vol. xiii, 1886, p. 85.
24. Brain, 1897, p. 308.
25. Jahresbericht f. Ophth., vol. xxiv, 1893, p. 512.
26. Trans. of the am. Ophth. Soc., vol viii.

binocular single vision are due to certain congenital defects of development; in other words, to lack of proper crossing of the optic fibers as they run forward from the visual centers. So far as he knows no proof of such an anatomic anomaly has been advanced to explain this failure to obtain binocular single vision. The fact that in certain cases of squint (usually alternating) two eyes with equally good vision, though straightened and treated by every known means, should still object to a completion of the act of binocular single sight is remarkable. It is exasperating that after early operation and training under apparently the most favorable conditions binocular single vision is unobtainable. Dr. Wood has not been able to accept the theory of lack of development of the fusion centers; he believes that we shall find the explanation in lack of proper crossing of the fibers at the chiasm.

DR. JOHN T. CARPENTER, Philadelphia, said that perhaps Dr. Wood's suggestion could best be carried out in a general hospital, where such cases might be followed and autopsies properly made. He thought that the rarity of these cases is shown by the fact that in fourteen years he has not had a case of chiasm disease in his private practice.

DR. CLARENCE A. VEASEY, Philadelphia, exhibited a skiagraph of a recent case of chiasm disease. The patient is a robust man, perfectly healthy all his life, except for this ocular disease. He has been able most of the time to follow his vocation, that of a traveling salesman. Two years ago this chiasm disease showed itself, beginning in the temporal field of each eye as a slight fogginess. Later the form field was lost, the light sense being retained. The dividing line has varied from time to time. At one time it would pass directly through the fixation point; at another examination it would pass from 2½ to 15 degrees to the right or left of the fixation point; then again through the fixation point. There were no intraocular changes. This variability of the field can only be explained by a lesion, probably vascular, which produces change in the pressure between the examinations.

DR. J. L. BORSCH, Philadelphia, said that it is advisable, even when there is atrophy of the nerve, when destruction of nerve fiber has taken place and the chiasm is separated into an anterior and posterior portion, so to speak, to give a guarded prognosis, for a patient may present an atrophy of the optic nerve and one may be led to believe that permanent blindness has resulted, and still such a patient may recover his vision. Seven years ago Dr. Borsch saw a patient in the de Wecker clinic who had been brought in by a friend, which friend had wrested a revolver from him as he was about to take his life, as several oculists had told him that he was incurably blind; one of these gave him a certificate to that effect in order that he might enter the blind asylum. On examination it was found that he had complete atrophy of both nerves, with slight light perception on left side of field; on close questioning the fact was elicited that during the Franco-Prussian war he acquired lues, which had not been treated; he had had the ordinary diseases of childhood, but otherwise had never been ill, and in other respects was healthy. The man was placed on energetic specific treatment, and at the end of four months he had 1/6 vision, and in six months 2/3 vision. Dr. Borsch saw the patient last year while in Paris; he had normal vision in right eye and 2/3 in left.

DR. G. A. ASCHMAN, Wheeling, W. Va., mentioned a case seen six years ago of angiolithic sarcoma of the optic chiasm. The patient had a central scotoma which grew from week to week, but before that occurred it was thought to be a case of tobacco amblyopia, as he had been a heavy smoker. The interesting point was that this patient did not have any fundus changes for a long time. There were no signs of pressure; no choked disc. It was thought for a time that it might be a syphilitic trouble, but he did not improve at all on antisyphilitic treatment. It illustrates what has been said about confounding these cases with tobacco amblyopia.

DR. FLAVEL B. TIFFANY, Kansas City, Mo., said that he had a case a year ago of bitemporal hemianopsia in a man of 50 years of age, who came to him complaining of blindness on the temporal side of each eye. There was no history of syphilis, no trauma. Vision was 20/70 of the right eye and 20/200 of the left. The color sense was also impaired, especially for red. The treatment was pilocarpin ¼ grain twice a day, also vibratory massage once a day. The patient improved on this, his vision coming up to 20/40 and 20/70, respectively, in the two eyes. The etiology was very obscure. The trouble was probably due to a toxemia from grippe, which he had had two months before the onset of the hemianopsia. The lesion was evidently located in the chiasm involving the crossed fibers or those from the nasal side of each retinæ.

DR. C. R. HOLMES, Cincinnati, referred to a case in which the postmortem showed the exact condition afterward. A newspaper reporter came on account of inability to use his eyes. Careful examination revealed the fact that his glasses were correct, and with the ophthalmoscope no lesion was visible. He was ordered on a vacation, but returned worse than before. The condition was rather obscure. He, however, had a good deal of swelling in the nose and complained of inability to breathe. Dr. Holmes operated on one side, removing the hypertrophied tissue, and he was to come the following week for another operation. The day before the second operation was to have been performed Dr. Holmes was notified that he was not well enough to come, and the next day he learned that the patient was dead. He at once sent an assistant to try to secure a postmortem, which he succeeded in getting. It was found that there had been inflammation with necrosis of the sphenoid cavity, which had not been apparent at the examinations through the nose. When the brain was removed there was found a clot in the region of the sella turcica and extending over the chiasm. The bony roof had been entirely eroded, and a finger could be put into the sphenoid cavity.

DR. JOHN E. WEEKS, New York City, asked why we do not more frequently find choked disc in these cases. A compilation has recently been made by one of the physicians associated with the New York Eye and Ear Infirmary of 102 cases,[1] and in only one or two of these cases was choked disc observed. The theory advanced by one writer is that the disease of the chiasm closes the subarachnoid space where the optic nerves leave the chiasm, and that the entrance of the subarachnoid fluid into the subvaginal space of the optic nerve is thus prevented.

DR. G. E. DE SCHWEINITZ particularly called attention to the series of cases described in which there is simulation of chiasm disease by other affections, and particularly to the explanation which they have endeavored to give of so-called bitemporal hemianopsia of hysterical origin, which is never in their experience a permanent stigma of this condition, but which simply represents a form of the well-known amblyopia of hysteria.

THE MATHEMATICAL POINT OF REVERSAL IN SKIASCOPY.*

SWAN M. BURNETT, M.D., Ph.D.
WASHINGTON, D. C.

Of all the objective methods for determining the refractive state of the eye, the shadow test is not only the most reliable, but, up to a certain point, the easiest to apply practically. In view of these facts it seems unaccountable that concerning the laws underlying the method, there should be such a lack of clear and positive proof offered, even by those who are supposed to deal with the subject in an authoritatively scientific manner. The ordinary text-books for students and general practitioners, without exception, I believe, pass over the theoretical part very superficially, giving attention wholly to the signification of shadow movements "with" and "against," mentioning the "point of reversal" only

1. N. Y. Eye and Ear Infirmary Reports, 1904.

* Read in the Section on Diseases of Children of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

casually, with a matter of course assumption that everybody knows where it is.

It is not my intention to charge these writers with ignorance of the laws on which the phenomena are based, but they certainly lay themselves open to criticism of lack of explicitness by any one seeking for a satisfactory scientific explanation of the fundamental principles involved. I am inclined to think that this lack of precision and definiteness in description may be due, in many cases, to the want of a clear idea of what it is that we really observe in making the examination by this method.

We are aware that Cuignet, who was the discoverer and first employer of the method in a systematic manner, had an entirely erroneous conception of the essential optical principles. He believed that the cornea was the chief agent in causing the phenomena, and since this was the thing to be observed he gave the name "keratoscopy" to his method.

It would seem also that some writers regard the image of the flame giving the illumination formed on the fundus of the observed eye as the object of direct observation, and have thus given some sort of justification for the use of that hybrid abomination "retinoscopy;" and I am sorry to see that Dr. Jackson makes one statement in his article on skiascopy in the Norris and Oliver's system which lends countenance to this. He[1] says: "The movement to be observed is the apparent movement of an area of light on the retina."

Any one reading the context, however, will discover that he does not mean that specifically at all, but something quite different, which only shows how nearly our best men sometimes come to making misleading statements in dealing with this subject.

Others, prominent among whom is Landolt, teach that the object of observation is the pupil, if we may accept the term "koroscopy" as indicative of his idea, though one is left in a confused state of mind as to whether he means the pupil of the observing or of the observed eye.

Now there can be no question that the subject of observation in this method is neither the cornea, the pupil nor the movement of an area of light over the retina. A study of the optices involved shows that it can be only one thing, and that is the image of the bright area on the fundus formed by the refracting system of the eye at the conjugate focus of the retina, or the far point of the observed eye. On this simple and fundamental mathematical fact hangs all the law and the prophets of the skiascopic method. In the higher degrees of myopia this lies between the eyes of the observer and the observed. In hyperopia, it lies behind the observed eye, while in emmetropia and low degrees of myopia it is behind the observer's eye, placed at the ordinary observing distance. The optical laws, explanatory of all the phenomena involved on this basis, I have exposed in a previous article[2] on this subject, and to this I refer those who care to examine into the details of the exposition.

In returning, at this time, to the "point of reversal," it is to attempt to clear away some obscurities that have surrounded its location and established its exact position in the quite complex optical system of which it forms a part.

In practice, it may suffice to say, in a general way, that the eye of the observer is at the point of reversal, but in any discussion of the question in an academic manner, as should be the case when we are dealing with an exact science like optics, it is necessary to establish that point with mathematical precision.

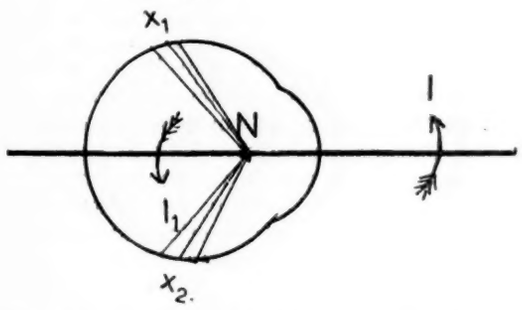
As in optics we deal entirely with points and lines, there must be a mathematical point in the compound optical system to which it belongs where the movement of this image in one direction passes over to that in another. Where is that point? The answer should be simple and clear.

Now we know in order to have a movement against the mirror rotation, an inverted image of the bright spot on the fundus of the observed eye must be formed in front of the nodal point of the observing eye, while in order that there be a movement with the mirror rotation, an exact image must be formed behind the nodal point of the observing eye; it necessarily follows, therefore, *that the point of reversal from the one to the other is the nodal point itself.*

This is shown in Fig. 1, where all movements of the image I, in front of the nodal point N, are against the mirror rotation, while all movements behind N, as at I^1, are with the mirror rotation. At N itself, which is the point of transition, or reversal from one movement to the other, there is no movement at all.

Furthermore, it must be apparent that when the image of the bright spot lies at N the rays X_1 and X_2

Fig. I.



preceding from any one point of it divergently in all directions, as they do from every illuminated object, are sufficient to fill the whole of the interior of the eye, since they are not acted on by any refracting medium. It follows, then, that so long as there is a single point of the image remaining at N, under a rotation of the mirror in any direction, so long will there be a steady and full illumination of the field with no defined edge, shadowy or otherwise.

The point of reversal at the nodal point, therefore, is characterized by no movement and a steady illumination under all mirror rotations. Moreover, these phenomena are possible only when the image of the bright spot lies exactly at the nodal point.

This is so inevitable that it seems strange that it has not found a categorical expression before this, but I have not been able to find it.

An explanation of the confusion and lack of clear expression on the subject may be found in one of several causes. The principal one, as I have mentioned previously, seems to me to be the want of a definite conception as to what is really to be observed and the position it occupies respecting the observing eye. Jackson, to whom we are so much indebted for his careful studies of the optics involved, fails to bring his usual clearness of demonstration to bear on this explanation, and the average student would not, I fear, find his ideas

1. Vol. II, p. 91.
2. Am. Jour. of Ophth., May and June, 1903; and in the "Principles of Refraction," published by the Keystone, Philadelphia, Pa., 1904.

as to the exact point of reversal altogether free from confusion, for the reason that he leaves so much to be inferred.

The same must be said of the account given by Souter, who has written lucidly and comprehendingly on optical questions in general.

Neither is Tscherning any more satisfactory in what he offers either as to the principles of the method or the point of reversal in particular. Accepting the theories of Parent and Leroy, he attaches great importance to the rôle of the pupil, and fails to mention the nodal point at all in this connection.

He says, in speaking of the point of reversal on page 210 of his "Physiological Optics": "At the critical moment, when the light changes its direction, the far point of the eye coincides with the pupil of the observer." Landolt in his last treatise on the methods of determining the refraction of the eye, now in course of publication in the new edition of the Gräfe-Saemisch System, takes the positive stand that the point of reversal lies in the pupil of the observer's eye. He says on page 248: "Aside from those conditions in which the illumination of the pupil with the mirror, be it plane or concave, moves in the same direction and those in which it moves in the opposite direction, there is yet another in which no movement of the eye is perceived at all, because the pupil in its entirety appears either illuminated or dark. This occurs when the far point, that is, the conjugate focus of the retina of the observed eye falls in the pupil of the observer's eye."

We have shown above that the conditions of constant illumination and no movement to which he alludes has its mathematical explanation only in the coincidence of the image of the bright area on the fundus of the observed eye with the nodal point of the observer's eye. It is possible to conceive here that the pupil, as such, can play a necessary part in the production of either of these phenomena; yet Landolt, throughout the text of his treatise and by the illustrations and diagrams, insists that it is the pupillary edge of the iris which plays the principal rôle. In this he has evidently followed Wolff, the latest German authority on skiascopy, from whom he quotes largely.

That the diaphragm of the ophthalmoscopic mirror with its sight hole, can and does play a modifying part in the sequence of appearances, can not be gainsaid and in my article, above referred to, this has been given due attention and what is there said can be applied with equal pertinency to the iris and its pupillary opening. It was there demonstrated and shown by diagrams, how when the examination was made in the usual way, and the point of reversal was at the nodal point of the observing eye, the pupillary edge of the iris of the observed eye, had its conjugate focus and image on the retina of the observing eye. This, however, is a secondary incident and has no direct nor necessary connection with the main and essential feature of the position of the point of reversal. If there were no iris nor diaphragm of any kind, the mathematical principles being still the same, the point of reversal would yet lie at the nodal point.

The iris and its pupillary opening not being in any sense cardinal points in the complex optical system, it is difficult to understand how it came about that such high authorities came to select this location as the point of reversal, except as an approximate guess.

It is true that in the normal eye the nodal point is not far removed from the pupillary opening, but in aphakia, for example, it is some distance behind, being at the center of the corneal curvature. There seems no more reason then, from a strictly mathematical point of view, for selecting the pupil as the point of reversal than the apex of the cornea or any other point in the immediate vicinity.

It has to be conceded that in our crude method of examination we are not able to locate the point of reversal with the mathematical exactness here insisted on. There is always a limited space within which the movements are not clearly defined, so that the phenomenon does not offer an immediate passing over from one movement to the opposite.

This inaccuracy can usually be neglected as insignificant in low degrees of ametropia, and when the point of reversal is located at a considerable distance from the eye, that is, one meter or more. Moreover, it must be held in mind that for the perfect working out of the law it is necessary that all points of the image fall on the plane coincident with the nodal point. Should the image be not so formed, some points being in front of, and some behind the nodal point, there will be conflicting shadows within the illuminated area. These I have called "internal shadows."[1] They have their origin in irregularities in the refracting media and are usually most pronounced under a wide pupil, which exposes the irregular astigmia of the periphery of the refracting media, particularly that of the cornea. In some cases these are sufficient to materially vitiate the findings. For the most accurate results this method demands media clear of any irregularity in refraction within the area of the pupillary opening.

DISCUSSION.

DR. EDWARD JACKSON, Denver, stated that any one who has followed the demonstration can see that it is the nodal point of the eye and not the pupil at which reversal takes place. In the sense in which Dr. Burnett speaks, of course, one does not look at the light area on the retina of the observed eye, but at the image of that retina which is formed at the conjugate focus of the retina on which the light area is situated; in the same sense, with a pair of opera glasses or field glasses one does not look at the actor or at the landscape, but at an image formed by the glass. One looks at the object through the intervention of the image. A paper of this sort can perhaps be better appreciated when read than when listened to, but it is of great practical importance to frequently follow these mathematical problems through a clear demonstration in this way. Not that it is the best way to learn the facts, perhaps, but that it is a good way to get a working conception of the facts. These facts can be learned from a book, but to follow them through a demonstration of this kind gives a working knowledge that is of great value, particularly regarding the shadow test. Nothing else in ophthalmology has been done so much by rule of thumb.

DR. MARK D. STEVENSON, Akron, Ohio, said that the mathematical point of reversal is never found in actual practice, and can only be imagined in theory in an ideal or standard eye. The light reflected from the fundus of the patient's eye passes out and forms an area of light at the examiner's face. If this area is much larger than the examiner's pupil only a certain amount of the light enters his pupil and the portion of the patient's pupil through which these rays pass, alone, appears illuminated. The remainder of the patient's pupil appears slightly darker. If all the rays of light reflected from the patient's fundus would focus at or pass into the observer's pupil, he would receive rays of light through every part of the patient's pupil which would appear completely illuminated. This will place him at the practical point of reversal. If the examiner could dilate his pupil *ad libitum*, so as to make

1. Trans. Amer. Oph. Soc., 1892.

it correspond to the area of light on his face, the patient's pupil would always appear fully illuminated. It is thus seen that if the observer's pupil receives all the rays of light, the observer is at the practical point of reversal. However, in this ideal condition under consideration, we must imagine a perfect anterior focal point or point of reversal coinciding with a pin-point pupil. The secondary rays of light will necessarily cross one another at this perfect focus, through this pin-point-sized pupil, thus making the nodal points coincide to the location of the pupil and point of reversal. Mathematically they do coincide, although in practice the pupil is the determining factor.

DR. SWAN M. BURNETT declared that it must be apparent that there can be only one mathematical point of reversal and that it is the nodal point of the examiner's eye.

SYPHILOMA OF THE CILIARY BODY.*

HERMAN KNAPP,
NEW YORK CITY.

My interest in cases reported by Dr. Charles J. Kipp,[1] Newark, N. J., and Dr. Edward Stieren,[2] Pittsburg, Pa., and in a recent case of my own, leads me to give a general description of this peculiar and uncommon condition.[3]

Dr. Kipp's first case was seen May 14, 1903. The right eye was normal, V. = 6/5. The left eye was greatly inflamed; conjunctiva intensely congested and slightly swollen; lids normal. Anterior chamber of normal dimensions, the temporal half filled with fibrinoid exudation. The nasal half of the iris visible, swollen and discolored. Pupil closed. No pain. The eye had been red and painful five days before Dr. Kipp saw the patient. Patient denied syphilis.

Diagnosis.—Irido-cyclitis plastica.

Treatment.—Warm fomentations, atropin instillations, sodium salicylate, leeches.

Five days later there was some bulging of the sclera along the upper and outer border of the cornea. This bulging increased, and two days later a dark-colored spot the size of a pinhead was noticed in the outer part of the horizontal meridian. Eye T + 1, intensely painful. Another black spot, smaller than the first, was noticed near the former; both grew larger. The bulging of the sclera increased, and some blood added itself to the yellowish mass in the anterior chamber. Dr. Kipp, believing that he had to deal with an intraocular growth, enucleated the eye. The wound healed in a few days. Shortly afterward Dr. Kipp learned that his patient had been treated energetically for syphilis.

Pathology.—Examination by Dr. Alt showed a mass of soft tissue, which had broken from inside through the sclerotic near the cornea, on the upper and outer side. The tissue was in direct communication with the enormously swollen ciliary body. The tumor started in the pars nonplicata, proliferated in the pars plicata and absorbed the iris. The optic nerve was atrophic. The tumor consisted altogether of small, round, polymorphonuclear cells, mostly mononuclear.

After-Treatment.—After the operation the patient received mercurial treatment and had good health.

Dr. Kipp's second case, a man aged 44, was brought by his physician. He was under treatment for syphilis. The left eye was normal, the right deeply injected, but not chemotic. Cornea hazy, Descemet's membrane dotted with whitish particles, the iris discolored and swollen, pupil contracted, secluded. Good perception of light. Mercurial treatment to be continued. He reported twice more, at intervals of a month. The eye went from bad to worse—hypopyon, iris covered with a thick, yellowish exudation, intense congestion of the entire globe with chemosis, cornea hazy, anterior chamber obliterated, pupil closed, faint perception of light, T + 2. In the sclera, a few millimeters from the outer margin of the cornea, several small black nodules projected 1 mm. above the sclera. Dr. Kipp yielded to the entreaties of the patient and enucleated the globe.

Examination of Tumor.—The tumor occupied the site of the ciliary body. The iris was drawn into the channel of the perforation. The ciliary body opposite the tumor was atrophied, but covered by tumor tissue, implicating the iris and filling the whole anterior chamber. The tumor broke not only outward, but also through the pigment epithelial layers of the pars plicata into the eyeball. It consisted of closely packed small mononuclear and polynuclear cells, and was in places quite vascular.

The patient recovered his health under prolonged treatment.

My own case is as follows:

A frail, unmarried woman of 32, consulted me Nov. 16, 1903. She is pale and has not been well for some time. Five days previous to her coming she found that her left eye was blurred. S. 20/70. In the center of the posterior surface of the cornea was a cluster of fine dots. Fundus blurred, but free from inflammatory foci. F. and T. normal. I made the diagnosis uveitis serosa, ordered rest in bed, atropin and salicylate of soda.

November 21. V.=20/40—. As the salicylate disagreed with her, I ordered calomel, refracta dosi. November 27. V. fallen to 5/200. Then she told me that she had syphilis and had been under treatment for it. I advised her to go to the hospital. She accepted at once and stayed there[4] seven and one-half weeks, where I saw her every day.

Treatment.—She was kept in bed as much as she could stand and was treated with mercurials, chiefly inunctions, and instillations of atropin and sublamin to keep the conjunctiva free from irritation. She developed an intense iridocyclitis. The ciliary region in the upper temporal part began to swell, at first in shape of a white, vascular nodule, which soon burst and showed the black uveal pigment. The swelling extended along the upper and outer neighborhood of the corneal margin. Its elevation was 3 to 4 mm., its length 6 to 8 mm. The cornea was hazy, the iris vascular and lack-luster, the pupil was about 3 mm. in diameter, its edge beset with filiform synechiæ. Tension increased, therefore instillation of 1 per cent. eserin, which soon reduced the hypertension. Yet it returned again when atropin was used, which was continued to reduce the iritis and prevent the closure of the pupil. Codein was given with the atropin. For a week her sight was more than perception of light, which as well as the projection, was always good. This kept me from proposing enucleation to her, though I asked myself whether that would not be the best treatment. Considering, however, that recovery of useful sight can never absolutely be denied, as long as perception of light or projection are preserved, I continued the treatment, and was gratified in seeing that gradually the symptoms abated. She never had great pain, for whenever it set in with plus tension, we gave her a myotic and morphin. As soon as tension was reduced we used homatropin or atropin, watching the effect.

December 12, about six weeks after her admission to the hospital, she counted fingers at 1 to 2 feet. The hypertension not infrequently alternated with hypotony, so that we could give atropin without hesitation. She was discharged Jan. 24, 1904. Pupil irregular, clearer; T. fundus dull; F. contracted temporally; V. fingers at 12 feet. The conjunctival congestion had almost disappeared, the perforation in the sclerotic was circumscribed, the elevation of the sclerotic diminished. She received strychnia tablets, gr. 1/50 for a week, then she was treated with potassium iodid and mercury mixed.

Result.—Her recovery progressed steadily. Atropin produced no glaucomatous attacks any more. The cornea and iris cleared themselves, the anterior chamber remained shallow for

---

* Read in the Section on Ophthalmology of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

1. American Jour. Ophthal., vol. xxi, pp. 3-11. Two cases of syphiloma of the ciliary body; clinical histories, Dr. C. J. Kipp; microscopic examination, Dr. Adolf Alt.

2. Gumma of the Ciliary Body, Penn. Med. Jour., Nov., 1901.

3. I acknowledge suggestions from the excellent monograph of Prof. T. v. Ervetzky, Ueber das Syphilom des Cillarkörpess, Berlin, 1904.

4. N. Y. Ophthalmic and Aural Institute.

weeks, the pupil dilated, the filiform synechiæ did not entirely disappear. March 29, with + T. 21/50, fundus still hazy. April 5, no inflammation, interior normal, pupil somewhat oblong. April 23, 1904, interior clear, some synechiæ; V. with — 1C. 90° 20/20.*

Thus the patient and the physician could mutually congratulate themselves on the reward of their perseverance.

Dr. Edward Stieren's case of gumma of the ciliary body was as follows:

A woman of 21, family history negative, was married at 16 years of age, gave birth to a living healthy child ten months after marriage. Six months later, November, 1899, symptoms of secondary and tertiary syphilis appeared (sore throat and abscess of tongue; a month later small brown blotches over the whole body, etc.). She nursed her child, contrary to advice, and infected it, but the child was soon cured by mixed treatment. The mother, receiving the same treatment, in appropriately larger doses, until March, 1900, when, against advice, she ceased medication. Dec. 24, 1900, she reappeared with a deep, spreading ulcer of the right side of the nose, involving the cartilaginous septum and the upper lip. She was put on large, rapidly increasing doses of potassium iodid, and in a week returned with the ocular involvement. The eye was extremely intolerant of light, with intense ciliary injection, muddy iris, cloudy aqueous, large leucocytic hypopyon, and a small inactive pupil.

Treatment.—Hot fomentations, instillation of atropin, large doses of potassium iodid, with ⅛ gr. of calomel every two hours, every day until Jan. 4, 1901, i. e., twelve days, when salivation called for the withdrawal of the mercury. On this date the eye presented the following condition: Hypopyon absorbed, pupil fully dilated, photophobia, ciliary injection and tenderness on pressure marked. Two days later a purplish diameter, gradually spreading in every direction, very painful to the touch. The pupil contracted opposite the swelling, giving it a kidney shape. Acute and constant pain, ciliary injection reaching its height, sight reduced to perception of light. Cornea very hazy in twenty-four hours, almost no fundus reflex.

January 10. Swelling increased, with oblique light; it was dimly seen to extend into the vitreous, pushing lens and iris forward. T. + slight. One hundred grains of potassium iodid were taken three times daily.

January 12. Patient more comfortable; photophobia and tumor unchanged; 160 grains of potassium iodid t. i. d., well tolerated.

January 16. Anterior chamber obliterated, showing reflex from vitreous chamber T. — 2; 180 grains potassium iodid t. i. d.

January 19. Total paralysis of rectus externus; 200 grains potassium iodid t. i. d.

January 29. Eye improved; pupil well dilated except at gumma; no synechiæ; the scleral aspect of the tumor slate-colored; fundus reflex bright, but no details of background; gumma notably smaller inside and out. V. 3/200; T. — 1; left external rectus regaining strength. From this date on steady improvement, reducing potassium iodid to 160 grains t. i. d.

April 6. The large doses of potassium iodid were no longer tolerated; now gr. x were given three times daily. Gumma had entirely disappeared, pigmentation in sclerotic marks its site. V. = 6/40.

May 1. Background clear, showing the remains of a neuroretinitis.

July 19, 1901. Perfect movement in all directions; a slight accommodative squint relieved by a cycloplegic. The round pupil slightly up and nasal. V. with correction, R. 6/8, L. 6/6.

Dr. Stieren draws the following conclusions: Syphilitic gummata of the ciliary body or of any other structure of the eye need not call for a hopeless prognosis, even though vision be reduced to perception of light and eyeball tension materially reduced. The resolution of gummous neoplasms is best brought about by large and rapidly increasing doses of the iodids; no limit in dosage need be thought of; the drug must be pushed until the symptoms yield, the gummy tumor melts away, exudates absorb, and inflammation subsides.

I indorse these views, except that in primary syphilis mercury would be my choice. As proof I cite my case in which the disease was identical with that of Dr. Stieren's in the pathologic conditions of the eye and in which the mercurial treatment brought about a perfect recovery.

*Note on correcting the proof, Dec. 5, 1904: The patient reported from time to time, continued to take small doses of KI, has had no relapse, and has perfectly recovered. The perforation of the sclerotic is still indicated by a small black patch. No changes in eye. Tn, Fn, V 20/20, H. K.

GENERAL NOTES OF THE SYPHILOMA OF THE CILIARY BODY.

Occurrence.—The beginning of this affection is difficult to determine, on account of the locality which we can not see. It seems usually to originate in the plicate part of the ciliary body as a nodule which, under inflammatory symptoms, grows in every direction, mostly into and through the sclerotic, into the anterior chamber, and into the vitreous at the relative frequence of 16:17:1, according to Ewetzky's statistics of 67 cases. Mostly it encroaches on two or even three parts. Usually only a single tumor develops, rarely (13 per cent.) two. More than two in one eye have not been noticed.

Appearance.—In the sclera it first appears as a small nodule, which may increase to the size of a bean. In its growth it is surrounded by a ring-shaped elevation, steep toward the cornea, but gradual toward the sclerotic. It is yellowish gray, and black when it has perforated the sclerotic.

In the extreme cases phthisis bulbi is the end. All intermediate grades up to perfect restoration are represented.

The duration of the disease varies from two or three weeks to nine or twelve months.

CONCLUSIONS.

The first appearance of the syphiloma frequently is a small nodule in the iris-angle of the anterior chamber, from whence it takes its way outward through the sclerotic or into the anterior and vitreous chambers, with exudations in the former as hypopyon spurium.

Only 9 per cent of Ewetzky's series had been free from iritis. The pupil is mostly changed by posterior synechiæ of the iris and membranous exudations, preventing more or less the examination of the posterior parts of the eye. These are frequently more or less seriously affected; for instance with congestion of the retina, retinitis in white patches, and postneuritic atrophy of the optic disc.

The shape and mobility of the globe are damaged in many ways and degrees.

As to sex, there were 47 men against 215 women; 52 per cent. were between 20 and 30 years old; 28 per cent. ended in phthisis bulbi. In 30 per cent. the enucleation was made.

The acuteness of sight in Ewetzky's count was in 66 eyes:

Blindness		63.6 per cent.
Weak sight	S=0.1	13.6 per cent.
Moderate sight	S=0.1 / S=0.3	12.6 per cent.
Good sight	S=0.7 / S=1.0	10.6 per cent.

Dr. Stieren's and my cases fortunately increase the good results.

DISCUSSION.

DR. SWAN M. BURNETT, Washington, D. C., said that syphilis of the eye is not usually a particularly malignant affection in the negro, but when the ciliary body becomes involved he has never yet been able to stay the process sufficiently to restore vision to any serviceable degree. Some years ago he reported in *Knapp's Archives* some cases of this sort with a drawing made from a section of the ball. A peculiarity of the structure, as these revealed, is its close pathologic resemblance to tubercle. The giant cells are pronounced in their formation and structure. Another point in which it resembles tubercle is that it destroys the tissue in which it is embedded. Last winter Dr. Burnett had a case under observation which under vigorous treatment finally disappeared, but the whole of the ciliary body and iris were transformed into cicatricial tissue, and he is sure that it will soon be added to the collection of eyes lost by syphiloma of the ciliary body. One of the most marked symptoms is the intense pain which it causes. It is essentially a secondary manifestation. Dr. Burnett has a man under observation now presenting a perfectly typical appearance who is in the secondary stage of the disease. The protuberance from the ciliary region is 5 mm. It is the second case he has seen this year. The treatment should be as vigorous as possible. Formerly he gave deep muscular injections of bichlorid. This is painful and it is difficult to get the patient to submit. Where he can not do this he uses the inunction treatment. He does not have to enucleate all these eyes, but he has a larger collection of them than he takes pride in. Dr. Burnett said he would like to hear from his confrères in the regions where the negro abounds regarding the frequency of this disease and its malignancy.

DR. CHARLES J. KIPP, Newark, N. J., said that he has not seen a case in which it did not become necessary to enucleate in the end. Cases in which there is apparently syphiloma of the ciliary body can not be diagnosed with certainty unless the tumor perforates the sclera. Dr. Kipp agreed with Dr. Knapp that mercury is preferable to the iodid. A patient came to him after the tumor had appeared on the outside of the sclera and was rapidly spreading. The man denied syphilis, and it was thought to be some form of intraocular tumor. There was a grayish-yellow exudate in the anterior chamber, covering the iris. It was only after the tumor began to spread that it was found to be a malignant tumor. The man returned two months after enucleation of the eye and said that he was getting blind in the other eye. There was a mild ciliary injection and some spots on Descemet's membrane. He was at once put on inunctions of mercury, and in eight weeks this eye was all right. A similar process was undoubtedly starting in the other eye. Dr. Kipp now relies entirely on mercury in these cases.

DR. E. E. HOLT, Portland, Me., stated that, during the Spanish-American war, there were a good many of the soldiers in the Maine Eye and Ear Infirmary, and in one there was a marked case of this kind, the left eye being the one involved. The inflammatory process came through the ciliary region and burst. Dr. Holt did not remove the eye, and the right eye was not involved at this time. The inflammation subsided. Within a week or ten days, however, the right eye presented a tumor in the ciliary region which went on and burst, and that eye was lost. Dr. Holt asked Dr. Knapp if removal of the first eye would have prevented the occurrence of the inflammation in the other.

DR. SAMUEL L. LEDBETTER, Birmingham, Ala., said that nearly all negroes have syphilis and they are generally neglected, so that this is a common sequence in that race. They generally do not appear for treatment until the sclera has ruptured and so, of course, a large percentage of the eyes are lost. A certain number can be saved when they come for treatment early enough.

DR. ROBERT L. RANDOLPH, Baltimore, said that he had recently observed a case which, in its objective signs, was like that described by Dr. Burnett. The patient was a white man and had been under the care of an ophthalmologist who had expressed the opinion that the condition was sarcoma of the iris and that the eye would have to be enucleated at once. There were, however, several things about the condition which led Dr. Randolph to think it was a case of luetic infection, and he put him on large doses of iodid of potash and also gave mercurial inunctions. In six weeks the man had recovered. While it is unlikely that the eye will ever become a useful organ, it is at least a comely and a harmless one.

DR. HERMAN KNAPP said that in syphilis the nodule which first appears soon disappears and the part above swells and almost invariably bursts and there is a black excrescence, which is pigment from the ciliary body. That is not characteristic in sarcoma, where the nodule is more or less oblong and tongue-like and in which there are very few inflammatory symptoms. This, Dr. Knapp thinks, is sufficient to make the differential diagnosis between this condition and sarcoma of the iris or ciliary body. Dr. Knapp, in replying to a question, said that he does not believe that sympathetic action in the other eye ever acts in that way, so that the removal of the eye would probably make no difference.

TEMPORAL CLEFT OF THE NERVE HEAD.*

CHARLES H. BEARD.
CHICAGO.

Having used the ophthalmoscope rather industriously in large eye clinics and in private practice for the past twenty-one years, I have been strongly impressed by the oft-repeated occurrence of a certain aberrant picture of the optic nerve entrance. Roughly estimated, the total number of well-marked examples of such anomalous optic papillæ that I have encountered is about sixty—seen in the eyes of perhaps forty individuals—or about one in every 1,000 persons.

This I consider an extremely conservative estimate, as I believe the number to be greater.

The most distinctive feature of the appearance in question is an apparent wide parting in the optic nerve fibers at the temporal side, or a sort of triangular cleft, outward, of the cortical portion of the nerve head. Briefly described, the condition and accompanying phenomena manifest the following peculiarities: The gray pink color of the disc is confined to a crescent at the nasal side which, with its horns, occupies about two-thirds of the circumference of the scleral ring. This crescent, at its broadest part, would seem to be somewhat wider than the normal zone of nerve fibers. The scleral and choroidal rings, as far as they outline the crescent, are of nearly normal width and appearance—probably a trifle narrow. Outward, the scleral ring is broad and slanting and, in most instances, the choroidal ring becomes a small external conus. Indeed, the cleft would seem to be nearly related to external conus, and does not occur with conus up and down or annular. I have seen a few such clefts where no conus existed. The whole disc is slightly foreshortened, owing to the obliquity at which the nerve pierces the sclera and the trunks of the retinal vessels appear suddenly from behind the horns of the gray-pink crescent. The triangular segment of the disc bounded by the horns, and the external scleral ring is on a lower level and is glistening white, excepting next to the scleral ring, where a blue-green shadow marks the brink of the depression. The depth of the depression is not great—hardly so great as that of an ordinary physiologic excavation—and is seldom crossed by any save the tiniest of the retinal blood vessels. Now and then a vessel from the

* Read in the Section on Ophthalmology of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

posterior ciliary system, or circle of Zinn, is seen to traverse this area—a truly unique sight in ophthalmology. All of which goes to prove that there are few nerve fibers between the observer and the sclera in this locality.

There are never any openings of the lamina cribrosa visible in this area, not even in its nasal extremity or apex. The diameter of the scleral ring is not excessive—on the contrary, in a few instances, the papilla is abnormally small—it and the adjoining conus both taken together not appearing larger than an average disc. From the beginning, the picture here presented has suggested to me that of a flower of the morning-glory family, projecting into the fundus, from the nasal side viewed in a horizontal manner, and with its stem hidden behind the globe. So I have come to note it in my records as "morning-glory right," or "left," or "both," as the case may be. In at least one-half the cases the anomaly is bilateral. Twice I have seen it in the eyes of more than one child of the same parents.

Anomalies of the retina (*a*); of the choroid (*b*); of the refraction (*c*) are constantly associated with this cleft optic nerve.

(A) ANOMALIES OF THE RETINA.

Those referable to the retina include freakishness in the distribution and other characteristics of the vessels. Often a posterior ciliary artery comes in and plays the rôle of a good-sized retinal one. Frequently, one of the eight larger vessel trunks is wanting, and the lack is made good by one from the opposite side, taking on twice its usual size and sending over a branch to supply the need. To judge from the shape and dimensions of the carefully mapped out blind spot in these cases, there is also an unnatural arrangement and distribution of the macular bundles of nerve fibers in the retina. This spot is almost invariably elongated toward the center of vision and that, to a degree and with a configuration out of all keeping with the size and form of any conus that may be present. Without the data of an exact anatomic examination of such a retina, to guide in the matter, a logical explanation of this peculiarity of the blind spot would seem to lie in the wide separation of the macular fibers. In other words, to the actual absence of the triangular sector of macular fibers at the optic-nerve entrance, and which corresponds approximately, in shape and size, to the cleft under discussion.

ANOMALIES OF THE CHOROID.

Among the anomalies of the choroid that exist in this connection, the most conspicuous and constant is the appearance of general lack of development. This tunic is thin and barren, being specially poor in capillaries and pigment. Hence, the eyeground is streaked and splotchy, and the irregular distribution of the pigment gives it the characteristic peppered look commonly spoken of as "powder-grain fundus." In rare instances one sees a plaque at the posterior pole, mostly congenital, wherein the choroid is either completely wanting or has undergone pigment degeneration; so-called choroidal coloboma of the macula. Small densely pigmented spots in the periphery are not infrequent. Occasionally there exists that condition of the choroid known as *fundus tigré*.

ANOMALIES OF REFRACTION.

The refraction of the eyes under consideration, while not exhibiting great departures from the normal, is rarely emmetropic, even in the usual acceptation of the term. Low grades of myopia and myopic astigmatism are the prevailing errors, though moderate degrees of hyperopia and hyperopic astigmatism are not uncommon among them. I have never seen this cleft associated with a high refractive error. Where the nerve defect is monolateral there is apt to be anisometropia or antimetropia. Temporal cleft of the nerve head with external clonus is not to be confounded with the obliquely set disc associated with posterior staphyloma, absorption of the choroid and high myopia. I do not remember ever to have seen the cleft in conjunction with these. In uncomplicated cases the defect or anomaly does not extend beyond the nerve head itself. The visual acuity, notwithstanding the best correcting lenses, is often below the standard, owing to the scant choroid. The fields of vision show varying degrees of diminished peripheral light sense, up to troublesome hemeralopia, but no other marked anomalies aside from those relative to the *punctum cæcum* already mentioned.

One of my cases was that of a 33-year-old man who came with the statement that since earliest childhood he had been unable to see at night, and that he had two brothers who had the same affliction. I rather expected to find the ophthalmic picture of retinitis pigmentosa. It proved to be a typical, double temporal cleft of the nerve head with the tiger fundus.

Another singular feature, that characterizes nearly every case, is torsion of all the fundus details toward the temple. Disc, conus, retinal vessels, fovea and macular coloboma of the choroid (when one exists) all show this temporal twist. This may have some reference to the fetal rotation of the globe, first noted by Kolliker,[1] and later by Vassius[2] and by Vasseaux.[3] This, of course, causes the macula and fovea to be placed abnormally low.

Cases complicated by great defects of the choroid are apt to have nystagmus and strabismus, particularly of the divergent variety. I have not seen any, however, that were accompanied by microphthalmos, harelip, cleft palate, nor other evidence of an imperfectly closed fetal fissure.

No inconsiderable amount has been written on the coloboma of the optic nerve and of the optic-nerve entrance. They mostly refer to incomplete closure of the ocular fissure, and are in conjunction with the downward coloboma of the choroid. The rest has to do, mainly, with various ectasias of the scleral portion of the nervehead, taking the forms of deep cavities or pits, single or multiple, within the area of the papilla, and situated at indiscriminate places. Another class, also quite prevalent in text-books and atlases, refers to a broad and deep excavation at the site of the optic-nerve entrance, whose dimensions, always considerably greater than that of the former disc, are often many times larger. The cases here in point are not those of true coloboma of the optic nerve, but their occurrence would seem to answer more to the explanation given by Ginsberg, of anomalous optic entrances which he had studied, both in the eyes of man and the lower animals, viz., a defect of the lamina cribrosa. A blocking up of the openings of the lamina cribrosa at the temporal side, or perhaps in some cases, an external, triangular area in this locality, where the sclera is actually imperforate. This would account for the crescen-

1. Embryologie de l'homme, p. 650.
2. Arch. f. Ophth., vol. xxix, p. 119.
3. Arch. d'Opht., vol. viii, p. 523.

tic arrangement of the optic nerve fibers, for the absence of any visible scleral perforations serving for the ingress of the nerve fiber bundles, and, in part, for the characteristic findings of the blind spot.

The nearest approaches to the description of the particular cleft of the nerve head treated of herein that I have found in the literature, are those of de Wecker, Stood, Nuël and Elschnig, though none of them conforms precisely to it. The nearest approximation as regards the papilla alone is the case of Nuël, but here there existed also high myopia and a plaque of bared sclera, outward, several times the size of the normal disc. Taking it all in all, Elschnig's case, which he examined anatomically as well as ophthalmoscopically, tallies most closely, though the ophthalmoscopic findings were considerably at variance with the cases here cited. Stood's second case is, to a degree, along this line, but here the temporal cleft was incomplete, as regarded the optic-nerve fibers, and a deep pit of ectasia occupied its floor and into which two retinal vessels dipped and disappeared, to emerge again on the other side.

Fuchs refers to a singular anomaly of the papilla, consisting in the presence of a small, temporal conus, and a white membrane covering the vessels over the greater part of the disc. He had seen three cases and cites another of Hirschberg.

I take it that the conditions presented by the fundi now brought to your notice have an important pathologic significance. This relates mainly to the accompanying imperfections of the choroid, as exemplified in its limited capillary system, its irregular pigmentation, diminution of the peripheral light sense, and general lack of blood supply. Its early recognition might redound to the great benefit of the possessor of such a fundus, for by one might hope for the possible prevention or amelioration of diseases arising through slow sclerosis of the choroidal vessels and other degenerative changes in the choroid, such as glaucoma simplex, true inflammatory glaucoma with high intraocular tension, and grave secondary degeneration of the retina. This would be accompanied, of course, by proper attention to the general physical condition, to the correction of errors of refraction, and, most important of all, to the regulation of the eye work in general.

BIBLIOGRAPHY.

Maklakloff: A case reported at a meeting of the Physio-Med. Soc. of Moscow. See abstract in Nagel's Jahresb., 1872, vol. iii, pp. 203-211.

De Wecker, L.: Traite complet d'opht., Paris, 1880, vol. i, p. 239.

Stood, W.: Klin. Monatsbl. f. Augenh., 1884, vol. ii, pp. 225-288 (particularly the second case).

Nuël: Ann. d'oculist., 1885, vol. xciii, p. 174.

Manz, W.: Arch. f. Aug., 1891, vol. xxiii, p. 1.

Ginsberg: Centralbl. f. prakt. Augenh., 1896, pp. 225-262.

Goerlitz, M.: Archiv f. Augenh., 1897, vol. xxxv, p. 219.

Fuchs: Archiv f. Opht., vol. xxvii, No. 1, p. 139.

Hirschberg, Beitrage z. prakt. Augenh., Leipzig, 1878, p. 64.

Elschnig, Antoine: "Normal Optic Nerve Entrance of the Human Eye," 8mo, Vienna, 1900.

Among those who have written on coloboma of the optic nerve are: v. Ammon, G. S. I.; Schoeler (cut in Nagel), 1875; v. Hippel, 1876-1900; Wiethe, 1881; Remak, 1884; Schnabel, 1884; Thalberg, 1884; Van Duyse, 1884-1896; Caspar, 1887; Hess, 1892; Bock, 1893; De Schweinitz, 1900; L. Johnson, 1901; von Oetlingen, Bergmeister, Nieden, Fuchs, 1885.

Pathologies of Wedle & Bock, Emile Berger, Greeff, Ginsberg.

Special articles by v. Hippel, A. Mooren, Nuël, Elschnig.

Atlases of Liebreich, Sichel, Pagenstecher, Genth, Frost, Haab.

DISCUSSION.

DR. G. E. DE SCHWEINITZ, Philadelphia, said that when one examines the fundus of the eye with the aid of Dr. Beard's intelligent observations, one becomes familiar with appearances which, while they may have been seen before, were never properly appreciated or interpreted. Dr. de Schweinitz considers that the temporal cleft of the nervehead, which Dr. Beard has called the "morning glory," should be called "Beard's nervehead." In some recent investigations Dr. de Schweinitz has been struck with the frequency of various anomalies, in the nervehead, of the retinal circulation and of the fundus of the eye generally in the so-called degenerate types. This has recently been the subject of an important series of observations in France, and the conclusion has been reached that there is nothing in the eye itself, so far as functional examination reveals, indicative of the degenerate type. Dr. de Schweinitz does not believe, however, that the end of this matter is yet at hand and thinks that the subject demands more elaborate investigation. If Dr. Beard's investigations are correct, we should all endeavor to recognize the conditions which he has described, because they may give indications for treatment which will prevent later ocular calamities.

DR. EDWARD J. BROWN, Minneapolis, said that during the past year and a half he has carefully examined all refraction cases with reference to the ophthalmoscopic appearance of the disc. Of the first 160 cases 39 presented greater or less temporal concavity of the disc, not confined to the center, and of these 3 or 4 presented the appearance described by Dr. Beard in sufficient degree to attract attention, 2 of them being decidedly pronounced. Of the 39 cases only 4 had perfect fields, the others presenting peripheral defects ranging from 10 to 30 degrees. Dr. Brown's attention was especially called to these cases by the paper published by Professor Schoen of Leipzig in the *Ophthalmic Record* of October, 1902, presenting evidence that the so-called "physiologic excavation" of the optic disc is pathologic in character. Dr. Brown's observations suggest that concavity of the disc, not confined to the center, may at least indicate that such eyes belong to a class especially liable to be the subjects of glaucoma.

DR. CHARLES H. BEARD, in replying to a question, stated that he had never found this cleft in conjunction with any fissures or openings indicative of imperfect closure of fetal clefts. With colobomata involving the nervehead one often sees microphthalmos and other deformities. The nearest he has found with these are nystagmus and strabismus. Where anisometropia exists, as Dr. de Schweinitz suggests, it is the eye that has the cleft which has the higher degrees of refractive error, i. e., where the defect is monolateral. At a joint meeting of the Chicago Ophthalmological and Chicago Medical societies, Dr. Beard in April last brought out the point in connection with the "powder grain" fundus and thin attenuated choroid; these cases are particularly liable to have wide physiologic excavations. In all those cases there is diminished peripheral light sense, and they are truly pathologic cases. Dr. Beard has found that these cases average up intellectually as well as any he has ever seen.

DEVELOPMENT OF THE FACULTY OF BINOCULAR FUSION.*

EDWARD JACKSON, M.D.
DENVER.

The fusion faculty, which controls the ocular movements in the interest of binocular vision, is one of the most delicate and exact, yet one of the most constant and rigid co-ordinations that the human being acquires. That it is not commonly possessed at birth seems to be well established by the agreement of all careful observers. That it is normally developed in early childhood, and only during early childhood, is equally certain. Persistent intelligent efforts have failed to give any indication of its acquirement in adult life. I believe it is well established generally before the age of 2 years, and practically always before 6. The earlier age is that

* Read in the Section on Ophthalmology of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

of normal development; the later is the limit of delayed or obstructed development, beyond which its appearance or development is impossible.

Although development of the fusion faculty occurs after birth, it is, I believe, determined essentially by congenital tendency. It is a race characteristic, and is not a result of the reaction of the individual to environment. It develops, as do the sex characteristics and organs, in obedience to inherited impulse; not like the power of reading or writing through conscious effort or training. There is not very much evidence on this point, yet what there is is fairly conclusive.

Take, for instance, the case reported by J. L. Minor to the American Ophthalmological Society in 1898, of a man operated on for congenital cataract at the age of 40. After one cataract had been removed the patient was still able to judge distance better with both eyes shut than he could by the sight of one eye. The other cataract was removed, and ten days later, when he was first allowed to use the two eyes together, tests with prisms and stereoscopic figures showed complete binocular vision. Two days after that when his eyes were again unbandaged he could judge distance accurately with both eyes open, but he usually missed when either was closed. His power of overcoming prisms was still comparatively feeble.

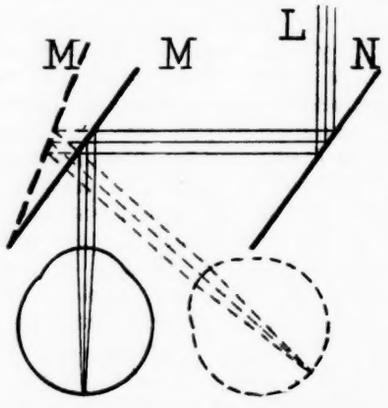
The very rapid acquirement of the power of binocular fusion from a few brief lessons with the amblyoscope reported by Worth and others, and which I also have witnessed, seems inexplicable except on the supposition that the fusion faculty has spontaneously become well-developed, although the patient, on account of some obstacle, has never learned to control or use it. Thus in the first of Worth's illustrative cases "fusion training" was given on five different days within a period of two weeks. On the fourth occasion it is noted: "The child has considerable amplitude of fusion." After the fifth seance, the eyes remain straight with glasses. Where the fusion sense has been established and the squint continues, Worth speaks of the repetition of fusion training once a month as being quite sufficient to keep up the fusion faculty until operation is permitted.

Evidently our most advanced treatment of squint today simply removes obstacles such as inequality of vision in the two eyes, or errors of refraction and the abnormal innervation they entail, or demonstrates to the child the existence of the fusion faculty that has already developed. But there are rare cases in which, without any apparent obstacle, no trace of binocular fusion seems to develop. In these cases without any serious error in refraction, with perfect vision in each eye, and no deviation of the visual axes, there still exists independence of function in the two eyes. They have no power of stereoscopic vision and no binocular diplopia can be provoked. There are also cases of alternating squint which are precisely similar to the above, except that the movements of the two eyes are co-ordinated to excessive convergence or divergence.

In a still larger class of cases a feeble faculty of binocular fusion or some rudiment of such a faculty is discernible; but it is not capable of overcoming even slight obstacles. The bulk of uncured convergent, like the neuropathic divergent squints of Worth, belong to this class. In the management of those cases must lie our chief opportunity for added future success in the treatment of squint. We now have instruments, the amblyoscope, the fusion tubes, and the stereoscope, with which we can in ten minute exercises demonstrate to the child the existence of the fusion faculty when it has already developed, but which he has heretofore left unused. These instruments, however, are not adapted to help in the continuous exercise of a fusion faculty which beside being unused, is really undeveloped.

In seeking an instrument that would aid us in the actual development of the fusion faculty, I have worked out one by which the patient can employ his binocular vision, such as he may possess, not only on a few specially prepared objects or slides, but on all objects that he looks at and continuously, even while there remains actual squint of any degree. The matter can be best presented by an explanation of the instrument.

In viewing the reflection of objects in a mirror there appears a lateral reversal of relative positions. If this reflection is reflected from another mirror the second reversal gives the objects their normal relative position. If the two mirrors are parallel, each object seen is seen after double reflection in its true direction. By inclining the surfaces of the mirrors to a certain angle each object seen through them appears displaced to double that angle. When, as in squint, the visual axis of the fixing eye is directed toward one point, that of the deviating eye is directed toward another. But by causing one or both eyes to look at such double reflections as are furnished by plane mirrors inclined to the proper angle



it is easy to present the same object to the visual axis of both the squinting and the fixing eye. The accompanying diagram illustrates the effect of changing the direction of one of the mirrors.

The solid lines represent the mirrors M and N as parallel and the eye as receiving the ray L parallel to its original direction. The broken lines represent M inclined as for a convergent squint, the altered direction of the ray after its second reflection, and the way it would be received by the converging eye. By varying the angle of the mirror M, the reflected ray can be given any direction required for even the highest degree of squint.

The instrument can be used for the same purposes as the amblyoscope or an adjustable stereoscope, with slides prepared as for the stereoscope. But it can also be used in looking at any object near or distant, to produce any modification of direction required in the interest of binocular fusion. If there be present a rudiment of this faculty, even with a high degree of squint, the mirror can be set at such an angle as to constantly stimulate the exercise of fusion. By varying the inclination of the mirror M, the patient can be induced to increase or diminish his convergence, and thus exercise his power of maintaining fusion.

For an instrument not to be worn by the patient the greatest simplicity is attained by arranging it to be used

before one eye only, the other being left free as in ordinary vision. The instrument swings either way on the upright that supports it so, that it can be used equally well for the right or the left eye. The arc can be graduated to show just how much convergence and divergence the position of the mirror represents. The reflection from two mirrors somewhat lessens the visibility of objects viewed by means of them; hence, the mirrors should ordinarily be placed before the non-deviating eye. To bring down the vision to an equality with that of the deviating eye, a series of smoked glasses of different shades are also furnished. These can be slipped in front of the opening, in the clip for this purpose.

With the width between the eyes, the degree of squint, and the difference in visual acuteness exactly known we can, in any given case, construct a binocular instrument very much smaller than this, which can be attached to a head band and worn continuously. With such an apparatus all the child's seeing for hours, or throughout the day, should be done under conditions that bring the two images of a given point on corresponding points of the two retinas.

I believe that with such an application of this principle of double reflection we will be able to bring about the development of fusion faculty in some cases in which such development would not otherwise occur. With the fusion faculty once fairly developed the complete cure of comitant squint becomes possible.

DISCUSSION.

DR. WENDELL REBER, Philadelphia, declared that there are three essentially different methods of regarding the eye: First, as an optical instrument contrived to form a perfect image, every focal point of which shall correspond with a radiant point in the object viewed; second, the retinal structure, and especially its bacillary layer; third, the still more wonderful correspondence of the two retinas, point for point, and of their representatives in space, point for point. Dr. Reber said that in the study of methods for the training of the fusion faculty, the question of the evolution of binocular vision is the primary consideration. It is a bewildering complex co-ordination, gradually acquired like walking or talking. The most rational method of studying this subject would seem to be in adults who, because of complete congenital cataract, have grown to maturity without seeing, and then had both eyes successfully operated on. Several such cases have been reported from time to time. One case recorded by Trombetta four or five years ago was that of a girl of 10 years, who had both eyes successfully operated on by Guaita, the eminent Italian ophthalmologist. Trombetta took charge of the young girl and in 45 lessons he succeeded not only in teaching the child to see without the sense of touch, but in obtaining satisfactory binocular vision. Before the twenty-fifth lesson, when the child's attention was directed to a nearly bright object, one eye would fix and the other wander up and out and oscillate. In the course of this lesson it was discovered that the child's vision had become stereoscopic. Dr. Reber said that in the case of the 40-year-old man quoted by Dr. Jackson, the question arises whether some sort of crude binocular vision did not develop and flourish before the man became entirely blind from the congenital cataract. If so, it would, of course, be a relatively easy matter for him to regain the faculty of stereoscopic vision when both retinas had been restored to their functions. This rousing of the faculty of attention and its close relation to the act of convergence, Dr. Reber considers, is closely bound up with the development of binocular vision. Le Conte shows that perception of the third dimension proceeds largely from an almost imperceptibly rapid exercise of the faculty of convergence. This fact, along with the psychologist's "mental faculty of attention," seems to form the basis for correct visual judgments. Whether the complex array of acts in binocular vision are or are not represented in the cerebral cortex by a special center is still *sub judice*. That a fusion faculty exists is beyond all doubt. Functional strabismus shows that the higher centers have abandoned the task of making the retinas correspond point for point, and must, therefore, be viewed as a species of atavism. The small globes and short interocular base line in little children, assisted by the excessive accommodation, will account for the turning in of the eyes rather than the turning out as would be expected. In constructing mechanical devices for the training of the fusion faculty one thing is axiomatic: that is, they should be simple and, if possible, so devised that they may be used several hours each day. The instrument here offered by Dr. Jackson is beautifully simple and if, as he states, it can be made small enough to be worn with a headband for several hours a day, it would seem to approach very closely to the ideal device for the development or restoration of stereoscopic vision. Priestley Smith's fusion tubes, one of which the child would take in each hand, represents the acme of simplicity. But as the child's visual axes are crossed, the tubes got in each other's way, and Mr. Worth happily thought of the reflecting tube and built his amblyoscope which has proved so efficient in selected cases. At no time should apparent parallelism of the visual axis be accepted as proof positive that the patient has been restored to stereoscopic vision. Some test for stereoscopic vision should invariably be resorted to as a final test, such as Hering's box, which is easily made and is quite as reliable as any.

DR. EDWARD JACKSON stated that the case cited by Dr. Reber is certainly nearer the experience of most cases of the sort that have been reported than is Minor's case. His case is a very exceptional one in the rapidity with which binocular vision was demonstrated after the second eye had been operated on. It was a remarkable patient; a patient who had remarkable powers of co-ordination for an absolutely blind person. The best illustration we have that binocular vision is developed sufficiently to go right into use after some obstacle is removed is the vision that children often get after the correction of a high error of refraction. Many of them will quickly or in a few days respond to the tests of full binocular vision. That is the basis for the assumption that binocular vision may develop to a high degree without having been exercised. The obstacle being removed binocular vision becomes possible. While the child undoubtedly acquires something in this short time, it does not acquire the complete nerve connections necessary for binocular vision. There is something there ready to be used as soon as the child acquires the knack.

DAIRY HYGIENE.

WITH SPECIAL REFERENCE TO THE LIMITATION OF BOVINE TUBERCULOSIS.*

RICHARD COLE NEWTON, M.D.
MONTCLAIR, N. J.

While perhaps it is impossible to be absolutely sure of the truth of any general statement, of which from its nature complete proof is unobtainable, we are justified, I think, in assuming that the statement that wild cattle are entirely free from tuberculosis is true. We are told that the native (Criollo) cattle of the Argentine are now and always have been free from tuberculosis. The appearance of the disease dates from the time when pure-blooded cattle were introduced into that country for breeding purposes. So it has been asserted that the native cattle of the Jura mountains and other places are, and always have been free from tuberculosis. So far as known, no animal running wild and eating the food that nature intended, has ever been tuberculous; and yet the disease is to-day the most common and most

* Read in the Section on Hygiene and Sanitary Science of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

generally distributed of all diseases, affecting as it does, all living creatures, including man and every known species of warm-blooded animal, as well as fishes, amphibians, birds and reptiles.

Since the discovery of the tubercle bacillus in 1882, there has been a steady advance in knowledge of this disease, and of its, hitherto unsuspected, distribution throughout the animal kingdom.

There is, however, no proof that an animal living as nature intended, as has just been said, will ever become tuberculous;[1] while on the other hand, it seems to have been distinctly proved that under appropriate conditions, with a large enough dose of the infecting material, any living creature may be made tuberculous. Coincidentally with the knowledge of the great distribution of tuberculosis, has come the welcome knowledge that the disease is, to a great extent, curable in both man and animals.

It was a revelation to pathologists when Trudeau and others observed that if rabbits were inoculated with tuberculosis and then allowed to run at large, they recovered, while those kept in confinement after the inoculation died. So a small number of successful experiments have been reported undertaken to show the curability of the disease in dairy cattle, notably some at the Storrs experimental station some years ago. Also certain experiments have been made to demonstrate that the susceptibility of cattle to the infection of this disease varies with their environment.

Dr. Pearson of Philadelphia, fitted up two cow stables in the University Veterinary School. One stable had only 3,000 cubic feet of air space and few windows, and was in every way unhygienic. The other had 9,000 cubic feet of air space, plenty of light, and was kept scrupulously clean. Into each of these stables he put four healthy cows and two tuberculous ones, and kept them there for seven months, at the end of which time the four originally healthy cows in the unhygienic stable were affected with advanced tuberculosis, whereas of the four non-tuberculous cattle kept in the hygienic stable only two were tuberculous, and that to an inconsiderable extent.

Dr. de Schweinitz[2] gives a case as follows: "An animal originally tuberculous, kept at the station of the Bureau of Animal Industry, has received about 3,000 c.c. tuberculin in different injections extending over a long time. The animal is now well and fat and has entirely recovered from tuberculosis."

Dr. Salmon stated[3] in 1901 that 20 per cent. of Canadian pure-bred cattle offered for importation into this country were tuberculous, whereas of those brought into the United States for grazing and feeding, not over 0.2 of 1 per cent. are tuberculous, while the milch cattle of ordinary breeds offered for import, occupy an intermediate position. Bang long ago pointed out that the calves of tubercular cows did not themselves become tubercular if immediately separated from their dams and all other tuberculous cattle, and fed on sterilized milk. Theobald Smith, Bang and others have insisted on the desirability of preventing tuberculous infection in dairy herds by keeping the cattle in the open air as much as possible, and keeping the number of cattle in one herd as small as possible.

Conn[4] says: "The fact is that the more experience accumulates the more we learn that many of these incipient cases of tuberculosis are only temporary and that the animals in question, if kept in a favorable condition, will soon recover and may live many years of useful life."

C. S. Phelps, the agriculturist of the Storrs Experiment Station, gives the history of an experiment as follows: "Four cows, having been found to be tubercular, were placed in a high, light and airy stable, affording about 1,500 cubic feet of air space to each cow, and having a yard in which the cattle could exercise. In mild weather they occupied the yard most of the day. No especial treatment for the disease was attempted, but good care and feed were afforded at all times. In October, 1896, all four cows responded to the tuberculin test as they did in January, 1897. In April, 1897, two responded; in July, 1897, none of them responded, nor did any of them respond in December, 1898, a year and a half afterward. In the following February two of the cows were in good, and two in fair health, judging from their appearance. One of them, however, was still coughing."

While the number of observations on the curability of tuberculosis in cattle is quite limited, there seems to be no doubt that the disease is curable as well as preventable in cattle as well as in man.

Nocard has said[5] that animal tuberculosis is now rare in Paris because the animals are not kept longer than a year before fattening and slaughtering. Such a plan would probably eradicate the disease in any country, although all housed and confined animals are sufferers from this disease.

Dr. Louis Robinson[6] pointed out some years ago the greatly superior health of animals in a traveling menagerie over those in zoological gardens, who were confined in one spot, although the latter enjoy every care and attention that science can suggest.

The enormous distribution of tuberculosis in so many different species of animals, fishes and reptiles, would seem to establish the fact that it is essentially the same disease in all, and that the structural, morphologic and pathogenic differences noted in the tubercle bacilli of fishes, birds and mammals are gradually developed and due to differences in pabulum, temperature and environment, which the bacillus experiences in being passed through various hosts.

The ingenious theory advocated by Hueppe and others that the timothy hay bacillus, which has been proved to have slight pathogenicity, is the father of all the different varieties of tubercle bacilli, is not entirely lacking in verisimiltude.

Avian, human and bovine tubercle bacilli can certainly be so altered by cultivation and by passing through appropriate animals that they become indistinguishable. It is not my purpose to discuss this aspect of the subject further, nor is it necessary to burden this paper with figures to prove the enormous distribution of tuberculous disease in dairy cattle.

Experienced dairymen place the percentage of tuberculous cows in New Jersey, for instance, at thirty, and probably the number is about the same throughout the New England and middle states, although, until proper laws are passed enforcing regular stated inspections of all dairy cattle, and the rigid enforcement of the tuberculin test, no really accurate figures can be published, nor can proper steps be taken to eradicate the disease. We are at present only dallying with this very

1. Bulletin 32, U. S. Dept. Agriculture, 1901.
2. Bulletin 13, U. S. Dept. Agriculture, Sept. 19, 1896, p. 17.
3. Bulletin 3, U. S. Dept. Agriculture, 1901, p. 21.
4. Report of the Storrs Agricultural Experiment Station, 1898.
5. Sixteenth Annual Report, Bureau of Animal Industry, 1899.
6. Therapeutic Gazette, 1896, p. 570.

serious question. To be sure, if no milk from tuberculous cattle was allowed to be sold, there would be now and for a long time to come a milk famine; as there seems to be little doubt that at least one-third of all the milk sold in our markets comes from tuberculous cattle.

It is a saying among dairymen that a tuberculous cow will give more milk than a non-tuberculous one. Whether this is true or not, as we have just seen, it is the pure-bred, high-grade milch cattle that are at present most affected with the disease, and there is not lacking good authority for the statement that superlactation is one of the predisposing causes, if not the principal one, of bovine tuberculosis.

From what has been said, it is evident that it is not alone necessary to destroy, or at least separate, all tuberculous cattle from healthy cattle, but that it is also necessary to take the best possible care of all dairy animals if the disease is to be eradicated and kept out of dairy herds in the future. The proper construction of cow stables and the care and food of the herd have been well understood for some years, but it is not so generally understood that cattle, like human beings, suffer from overcrowding and from confinement. Not over forty or fifty cows should live in one stable, and they should have their regular exercise, even in the coldest weather. The sun should shine into their stables all day long and the cubic air space should be much greater than that usually allowed. Alvord[7] advises 1,200 cubic feet per cow.

One writer,[8] after asserting that the tuberculosis of milch cattle is due chiefly to over-milking, urges that every one should be prohibited by law from milking a cow during the last three months of gestation. Nelson says that if animals are properly cared for they will not contract tuberculosis even when exposed to the disease. He refers more particularly to the diet in this connection.

Fortunately we have an efficient and easily applied means for the demonstration of the presence of tuberculosis in man and animals; namely the tuberculin test. Unfortunately, however, this test is not absolutely infallible in the most scientific hands, and as usually applied, it is subject to certain errors which should be more generally understood and guarded against. That cattle with advanced tuberculosis fail to re-act to the test is well known, but in most, if not all of these, careful physical examination will reveal the presence of the disease. It is in the early stages of the infection, when physical examination fails to reveal anything wrong with the cow, that the tuberculin test is our sole reliance and in these cases, errors, if they do occur, are more likely to be costly and far-reaching. It is asserted by some that a healthy cow may re-act to the tuberculin test. At all events she would unquestionably do so if by any chance the amount injected were too large or too concentrated. Nelson[9] only claims for the test 90 per cent. of efficiency after excluding all sources of error.

Nevertheless, it is a remarkably accurate and trustworthy method of diagnosing incipient tuberculosis, and the failures to re-act when tuberculosis is present, are astonishingly few, when we consider that there is nothing absolute in medicine and that in practically no case can every possible source of error be eliminated.

It is now customary to say that there must be a rise of 2 F. in the cow's temperature within from twelve to twenty-four hours after the injection of the tuberculin to indicate a positive reaction. The bovine temperature, however, is a variable matter, each particular cow being a law unto herself. The temperature during the rut runs higher than at other times. Young cattle as a rule have a higher temperature than older ones, and the temperature of the same animal (without discoverable cause) may vary within considerable limits (Nelson[10] says 2 degrees) on different days and at different hours of the day. While the average dairy cow's temperature may range between 101 and 103 F., it seems unjustifiable to say that a temperature of 103 or 103.5 F. is always due to the reaction from tuberculin. For this reason the temperature of cows should be taken more than the two or three times at two-hour intervals, as is now customary before the tuberculin test is applied. In fact, to render the test fairly accurate, the temperature of each cow should be taken at two-hour intervals for forty-eight hours before and for twenty-four hours after the injection of the tuberculin. As the temperature of milch cattle is variable, and is especially so among Jerseys and other high grade stock, we should expect that their temperature would bear some relation to that of the surrounding atmosphere, and sometimes at least, this would seem to be the case. At all events, Dr. North, of the Purity Milk Farms in Trenton, observed that after thirty-five cows were injected with a double dose of tuberculin in October last, they averaged 1 F reduction of temperature. At the time of the tuberculin injections the thermometer in the barn registered 80 F. The next day there had been a drop of 30 F. in the outside temperature, so that the thermometer in the barn registered 50 F., and every individual cow showed a reduction in temperature of from half a degree to a degree from the evening temperature of the day before, when the tuberculin test was administered. Some of the cattle showed very little variation, so that it may be suspected that they were tuberculous, and had it not been for the great fall in the external temperature, their bodily heat would have increased instead of remaining nearly stationary, after the injection of tuberculin.

A cattle dealer has asserted that he can make any cow pass the test for tuberculosis by putting her in the cold room of a refrigerating establishment and keeping her there a few hours after she has been injected with the tuberculin. The dealer asserted that this keeping of the temperature down could also be accomplished by throwing cold water on the animal with a hose. At all events, for a pronounced case of tuberculosis, or for an animal that has been a short time before subjected to the test, the 2 F. rise which has been agreed on by the veterinarians as the standard, is too high, since, as we have seen, some cattle, although strongly infected with the disease, will not re-act to that extent.

Thirty-eight cows which had passed the state veterinarian of New Jersey and had their papers, were one month afterward re-tested, nine of them, or nearly a quarter, reacted to the tuberculin test. The official tests have been found so often unreliable that many dairy men no longer trust them, but have their own veterinarian test every new cow before she is admitted to the herd. A friend of mine tested twelve cattle in one herd of nice looking, fat cattle presenting no evidence of disease, except that some of them coughed a little, and found that eleven of them were tuberculous. This same man was offered six Jersey cattle, all of which, when tested, showed tuberculosis. These same cows were subse-

7. Year Book, U. S. Dept. Agriculture, 1894.
8. N. Y. Medical Record, Nov. 6, 1897, p. 685.
9. Bulletin 118, N. J. Agricultural Experiment Station, Nov. 30, 1896.
10. Report Biological Dept. N. J. Agriculture College Experiment Station for 1894.

quently sold to a wealthy man from New York for the especial nourishment of his children and invalid mother-in-law.

In another case, the one cow picked out of a herd for the exclusive nourishment of a particular infant, was tuberculous. A man went to a farm to buy four cows. The owner agreed to allow them to undergo the tuberculin test as a preliminary to the sale, provided that he should not be told if any of them were tuberculous. On applying the test, three reacted.

In a well-known dairy herd in New Jersey of 350 cows, a careful test is made of each animal every six months, and 15 per cent. of the cows have been repeatedly found to be tuberculous and have been taken out of the herd. Every precaution is observed in this excellent dairy to keep the cattle healthy and eliminate every possible source of infection, with one glaring inconsistency, as follows—the dry cows are boarded at the neighboring farms until they are ready to calve, when they are brought back to the dairy, and some of them must needs bring a fresh infection of tuberculosis with them.

It would probably be as economical to slaughter every cow when she goes dry, according to the method said to be in vogue in Paris, as to lose a third of a valuable herd every year from tuberculosis, and perpetuate the infection.

Nor does careful testing always avail to detect tuberculosis in cattle, nor to prevent its spread, as the following well authenticated case will show: A dairyman, desiring to move a herd of twenty cows from New Jersey into Pennsylvania, had them tested for tuberculosis in compliance with the law. Seven reacted and had to remain in New Jersey. Of the remaining thirteen, four were purchased and put with a healthy herd of 100 cows. In three months' time this herd was tested and only one cow reacted. This cow was one of the four that had been taken out of the infected herd. As the latter herd had been tested by a competent and honest veterinarian, this result shows one of the limitations of the tuberculin test, and it also shows that had the owner of the larger herd not been unusually vigilant he would presently have had, instead of one tuberculous cow, a badly infected herd.

As said before, our present laws are quite inadequate for the eradication of this widespread and rapidly growing infection. The different states demand that cattle brought across their borders shall pass the test, but they do nothing effective to quench the fire which is consuming the very vitals of the dairy industry.

A law commanding the firemen to direct all their attention to the environment of a burning building, but not to touch the building itself, unless they shall receive a request from the owner to do so, would hardly be considered sound legislation, nor calculated to deal effectively with the situation. Yet this is practically the nature of the present laws against bovine tuberculosis. An owner may have his herd tested by a more or less competent veterinarian if he chooses, and may receive about one-half the value for the cattle that are condemned to be slaughtered, or he may, if he elects, remain in blissful ignorance of the real state of health prevalent in his herd and may maintain a hot bed of infection and disseminate tubercle bacilli among the unsuspecting populace indefinitely.

We can no longer screen ourselves behind Koch's fallacious, albeit comforting, pronunciamento that bovine tuberculosis is not communicable to man. That it is communicable has been proved beyond all reasonable doubt. And furthermore, to quote Dr. Salmon,[11] the infection of human beings with bovine tuberculosis is one, if not the principal, cause of the long-continued virulence of human tuberculosis. He says "The human (tubercle) bacilli are generally much more saprophytic in their characters and far less virulent than those of most other mammalian sources, and it seems that the human organism has the power of attenuating these bacilli and gradually making them less and less harmful. But this influence for good must be continually counteracted by the infusion of extremely pathogenic germs from animal sources."

What then is our duty in the premises? It seems to me that there can be no doubt in any thinking mind, that a law should be passed making a semi-annual test of every dairy animal in the United States compulsory, and providing for the slaughter of every one showing any evidence of tuberculosis, and providing further that the owner shall be compensated to the full extent of the damage done him by slaughtering his animal or animals.

Such a movement would not cost a tithe of the sum which the government expects to spend on the Panama Canal, nor of that which it will cost a private corporation to tunnel the Hudson and East rivers in New York harbor, and yet it seems to me that from economic, scientific and philanthropic considerations, the stamping out of bovine tuberculosis would be a thousand-fold more beneficial to our country and to mankind the world over than the consummation of either of the great enterprises just spoken of.

Let us wake up from our lethargy and show that we are really advancing in civilization by adopting a very plain and obvious means of wresting from the "great white death" one of his most powerful and insidious weapons.

Let us also put out of business the bologna sausage man, who gives the dairyman $15 for the carcass of every diseased animal, which the latter can no longer milk at a profit, and makes the meat up into sausage.

Whether or not the remarkable freedom of the Hebrews from tuberculosis is due to eating Kosher meat, the reasonableness of the proposition that we should adopt similar precautions in choosing the meat for our tables is irrefutable in my opinion.

DISCUSSION.

DR. H. M. BRACKEN, Minneapolis, approved of testing dairy herds for the purpose of securing non-tuberculous cattle. The percentage of milch cows affected with tuberculosis as given seems very high, and, for Minnesota, he is sure it is too high. He does not think that the passing of a law by Congress compelling an examination of all cows is practicable. Compensation for the cattle destroyed can be easily regulated through the state legislature. In Minnesota a law has been in force for several years allowing compensation. The farmers throughout the state are not compelled to have their cows tested, but many of them are doing so. At first the compensation was two-thirds of the appraised value. The farmers and the dairymen were both well satisfied with this, for, as a matter of fact, the appraisals were generally high, and two-thirds of the appraised value nearly or quite represented the real value of the animal. Later this law was changed, and the owner now receives three-fourths of the appraised valuation. A man may require the testing of cows as a condition of purchase, but the owner is allowed to keep those condemned cows and sell them later in the open market. This should not be permitted. A great deal of the testing of cattle for the purpose of excluding tuber-

11. Maryland Medical Journal, February, 1904, p. 92.

cular milk from the city supply is a farce. For example: The dairyman's herd is inspected, say, once a year; 10 cows out of his herd are condemned, and he buys 10 cows to take their places. The 10 cows bought come from the open market, and nobody knows until possibly the next year whether they are tubercular or not. Such methods do not exclude tubercular cattle from the herd. An effort was made in Minnesota to require dairymen to purchase only tested cattle. Of course this is easily carried out in dairies furnishing certified milk, but with the general dairymen it is a difficult matter. Dairymen said they were willing to purchase such animals if they could, and were willing to pay an additional sum for them, but there were no such animals on the market. On various occasions efforts were made to place tested cows on the market, but without success. Dr. Bracken said that while tuberculous milk is dangerous, the dangers may be exaggerated. More children die from the use of bad milk than from the use of tubercular milk, and too often in the effort to secure milk from a non-tuberculous herd of cows the general sanitary conditions surrounding the cow and the milk are entirely overlooked. There is room for the general improvement of the sanitary conditions surrounding the dairy, the cow and the dairyman.

DR. GEORGE A. HARE, Tacoma Park, Wash., confessed to some disappointment in learning of the status of dairy inspection, and of the sanitary conditions surrounding the dairy supplies given to the people of the eastern states. He believes that there are very few questions before the American people to-day fraught with the possibilities for good or evil to such an extent as is the question of dairy products and their proper inspection and believes also that we are looking entirely in the wrong direction for help. He said that the remedy is at our hands and just as soon as the medical profession wakes up just so soon will this question be solved in a practical manner. This question will be finally settled by the verdict of public opinion and public opinion on sanitary matters is molded almost entirely by the attitude of the medical profession. With a careless or indifferent family physician we can not expect very much care on the part of the recipient of the dairy products. If the physicians are asleep and apathetic on this vital question, the people will remain so. In the eastern states tubercular cattle are far more numerous than in the West, where the cattle have larger ranges. About 3 per cent. of the cattle tested in California are affected with tubercular disease. The sanitary affairs of every state at the present time are supervised by a board of health. The time has come in our country when these boards of health should be controlled by physicians. Where they are controlled by physicians there is no good reason why the standard of dairy products may not be raised and maintained at any degree of efficiency the physicians choose. Dr. Hare said he had observed the conditions in a small city of 20,000, which a few years ago had no sanitary regulations. A board of health of five physicians was appointed, all of them untried men, but they had enthusiasm and a confident faith in the practical results of properly enforced sanitary laws. The result is that every dairy in that county is at the present time required to operate under a license. In the application for license it is specifically stated that the vendor of milk will subscribe to and observe every condition laid down by the board of health, and those conditions are printed in the application, with the statement that if he violates them wilfully his license will be forfeited. If he violates them unconsciously he agrees to correct the error immediately on his attention being called to the matter. As a result of these methods that city has clean dairies—the dirty ones went out of business. They raised the price of milk a trifle, not nearly so much, however, as the gain in the prevention of the use of water. Every dairy is inspected every month. Every dairyman is under contract not to purchase milk outside of the product of his own cows, nor outside of the cows registered by the inspectors, and never to sell milk from any cow that has not been tested. When he adds a new cow to his herd, that cow must be tested, or his license is forfeited. The milk dispensed in the summer time must show below 50,000 bacteria to each c.c. In the winter season the bacteria must be below 30,000 to each c.c. The count is made twice each month, and with but one exception has been below the requirement and down even as low as 10,000 or 12,000 for a number of months. Those are practical results. Dr. Hare could see no reason why it should not be within the province of the medical societies of this country to so supervise the dairies of America as to exclude all diseased cattle, and to demand that all cows must be properly inspected. Public sentiment so strongly endorses the work of the board of health of that city that no dairyman in the county at the present time wishes to risk a lawsuit. Every dairyman's report is published in the paper. This has greatly stimulated the dairies to compete with one another in the production of a good product, because the people will go to the dairyman who has the best record. They find it to their own interest to watch one another. Until physicians realize that they can control the dairy business of this country they will be unable to control tubercular cattle.

DR. HURTY asked how long this process has been in existence and for how long a period the health officer is appointed.

DR. HARE, replying to these questions, said that this process has been in existence for three years, and that the health officer is appointed by the board and continues in office at the pleasure of the board. The board is appointed by the mayor for a period of four years, but the physicians took a hand in the framing of the charter, which specifically states that not more than two persons of the same political party can be members of the board of health.

DR. J. N. HURTY, Indianapolis, said that he became very much discouraged at one time in the work of controlling the milk supply on account of an experience at Indianapolis. They had an excellent health officer. He was doing good work. He had been in office for two years, that being the term of the mayor; then the politics of the city turned over, and out he went. Fortunately, another good man was put in, and he continued the work which the first man had inaugurated, producing very excellent results; then the politics of the city turned back again, and out he went. Dr. Hurty thinks that boards of health should not be composed of physicians entirely, and it would be well to have trained sanitarians on them. In the State Industrial University, situated at Lafayette, there is a department of hygiene. The man at the head of the department is not a physician; he is a graduate of the Boston School of Technology and has had training with the Massachusetts Board of Health. He has brought the department up to a high degree of efficiency, and, although not a physician, has been very successful in teaching sanitary science and this fact has led Dr. Hurty to believe that if a professional sanitarian, although not a physician, is appointed to the board, good results would be produced. The gentleman has been permitted to work through several administrations at Lafayette, no matter whether democratic or republican, because he is not a physician but a professional sanitarian. Dr. Hurty believes that there was a health officer at Mont Clare who was not a physician. He was very efficient and did good work there, and is now employed by the United States Geological Bureau in the hydrographic department. This promotion came on account of efficiency. In Indianapolis a plan was tried of managing the dairies that was extra-legislative. At that time there was no milk ordinance. The secretary of the board of health enlisted the aid of the newspapers and the board announced, although there was no law for it then, that they would give licenses to all dairymen whose dairies would pass inspection, and the newspapers printed the rules as to what would be required in the inspection. The people were very much interested, and the dairymen all rushed in to get their licenses, because the people demanded it. The plan worked well. The state veterinarian tested the cattle. Photographs of clean dairies appeared in the newspapers from time to time, and

the very best results were being secured; then out went the man. Politics interfered, and the work has to be done all over again at some future time.

SURGEON-GENERAL STERNBERG, Washington, D. C., agreed with Dr. Hurty that a professional sanitarian might be a more suitable member of the health board than a physician who is not a sanitarian, but it seems to him that the professional sanitarians we need are men who have a medical education in the first instance, and added to that the necessary training to make them sanitarians. He thinks a great many physicians and health officers in this country appreciate the fact that a trained body of medical men who are specialists in sanitary work is needed. At the present time there is no regular system of training, and no place to go and pursue such a course of study. There is some prospect in Washington of being able to present such a course to those young medical men who desire to be sanitarians; the course will last for two years and lead up to the degree of Doctor of Public Health. The program has been made out by the president and trustees of Columbian University, which is soon to be called the George Washington University. The faculty has been selected. Dr. Sternberg is to be the dean, and among other members of the faculty are Dr. Wylie of the Agricultural Department, Dr. Salmon, and Dr. Stiles, who is an expert in everything relating to animal parasites. Dr. Wyman is to give lectures on quarantine administration, and Dr. Woodward on municipal sanitation. Dr. Sternberg is to have the general subject of hygiene. One or two distinguished lawyers and one justice of the supreme court, who is connected with the Columbian Law School, will give instruction with reference to sanitary laws, and the limitations placed by the constitution on legislation. They expect to have a competent sanitary engineer. The trustees have approved the plan, and there is only one thing at the present time that prevents them announcing that they are ready to receive students, and that is the lack of money. The trustees have decided that such a department shall be established as soon as $250,000 can be secured as an endowment or a guarantee fund of $50,000 to carry on the work of the department for a period of five years. If any wealthy gentleman will come forward with the guarantee fund they will be prepared to start the Department of Public Health. Dr. Sternberg believes if it could be fairly started that in the course of a few years they could begin to turn out thoroughly trained sanitarians. They will admit to the course non-graduates in medicine in order that they may take advantage of the instruction, but they can not receive a degree. The time will come when public sentiment in this country will demand that there shall be on every board of health at least one trained sanitary expert to whom all questions can be referred, who will conduct the laboratory work, etc.

DR. G. T. SWARTS, Providence, R. I., suggested that the trustees interview brothers Rockefeller and Carnegie.

DR. SENECA EGBERT, Philadelphia, believes the time will come when just such a school as this will be demanded; and when it begins to turn out its graduates we will then have sanitary districts, each with its proper sanitary officer. This plan is now in vogue in England. The United Kingdom is subdivided into sanitary districts, and in each of the sanitary districts there must be a sanitary officer, who is usually a graduate of just such a school and with such a degree as Dr. Sternberg has described. Dr. Egbert said if we can make the dairymen understand that by improving the conditions of their dairies and making them more sanitary and more nearly normal they are going to help themselves economically, we will reflexly help ourselves and our people, because as the dairy improves so will the quality of the milk improve. We must impress on the dairyman the necessity of putting his cattle in the best hygienic condition possible. Dr. Egbert believes that much of our tubercular infection comes from the milk and food we consume. He believes that the usual way of infection is through the alimentary tract into the lacteals, thence up through the thoracic duct to where it enters the subclavian vein. The chyle is poured directly into the subclavian vein just before the blood goes into the vena cava and heart, and from there right into the lungs. The material that goes into the body by way of the thoracic duct must go directly to the lungs, and the first place where it meets any marked obstruction to its progress is in the capillaries of the lungs. Everywhere else it has a comparatively large lumen to pass through.

DR. H. M. BRACKEN, Minneapolis, said that he does not think the Jews are any more careful in excluding tuberculous meat than are the gentiles. He knows of instances where tubercular cattle were killed under inspection, and the Jewish butchers were ready to take meat of a lower grade than the regular butchers. So far as he can judge, their inspection of meat does not amount to much when it comes to the question of tuberculosis.

DR. GARDINER SWARTS, Providence, R. I., said that there has been a good deal of dispute of late whether animals can infect the human being with tuberculosis, although the trend of opinion is confirmatory.

DR. R. C. NEWTON said that, so far as he could ascertain on the eastern seaboard, the percentage of infected cattle was 30 per cent. Whether this is so or not over the entire country, we have no accurate knowledge. Buyers of fancy cattle and men who are trying to get high-class herds have had such an experience that they are beginning to think the disease almost universal. Thirty per cent. among eastern cattle is, perhaps, a low average. New Jersey has just passed a good law, which requires that every health inspector shall be examined as to his fitness and be licensed. The present inspector in Montclair is a graduate of the Massachusetts Institute of Technology. Those men are educated along the lines of chemistry and bacteriology better than the average physician. An epidemic of typhoid fever which occurred in Montclair in 1894 resulted in giving the health board more power than perhaps any other health board in the state. They have regularly employed an expert inspector since then. He has an analysis made of the milk delivered by every dealer every month, and that analysis is posted on the wall in the office of the board of health and any one can go in there and find out whether he is getting milk with 30,000, 40,000 or more bacteria to the c.c. or not. The more careful dairymen are getting all the business. Public opinion must be elevated considerably above its present status in order that the health boards may have proper authority to issue licenses to all dairies and to revoke the license of any dairy not properly administered. It is a matter of common report that the Jew is remarkably exempt from tuberculosis, and many observers have asserted that the careful inspection of their meat is at least one cause of this. It has been stated on good authority that out of 10,000 Jews in New York City one will find only 79 cases of tuberculosis, while among 10,000 Irish in the same place one will find 660; among the Swedes, 500, and among the Americans over 200. If we knew the reason for this we would be able to do something definite towards solving the great problem of the predisposing cause or causes of human tuberculosis. Dr. Bracken thinks hygienic laws and general habits have a great deal to do with it, but he does not think the meat has anything to do with it.

IS PNEUMONIA INCREASING?*

JOHN S. FULTON, M.D.
BALTIMORE.

The generally accepted view that the pneumonia mortality has risen rapidly in late years rests on no other evidence than the apparent mortality rates and ratios. If the rates and ratios are in general delusive, and if with respect to pneumonia they are shown to be fallacious, it does not follow that we must diminish our

* Read in the Section on Hygiene and Sanitary Science of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

respect for pneumonia as a cause of death, but that we must more accurately determine its important relations.

I shall use the ratios almost exclusively in this study, because the disturbing factors of mortality ratios are more easily ascertained than those of the death rates, and the ratios are less influenced by the vagaries and inconsistencies of registration.

The apparent rise of pneumonia dates from the beginning of mortality registration in this country, and has over and over again been the subject of remark. In 1889 the registration report of Massachusetts comments on the apparent rise of pneumonia mortality above the age of 60, but no remark is made on the statement that the ages below 15 had suffered 36.12 per cent of the pneumonia mortality during the previous 20 years. Its apparent rise since 1890 has, however, brought pneumonia prominently into view, and this period (since 1890) has been most discussed. In a study of the mortality reports of the United States

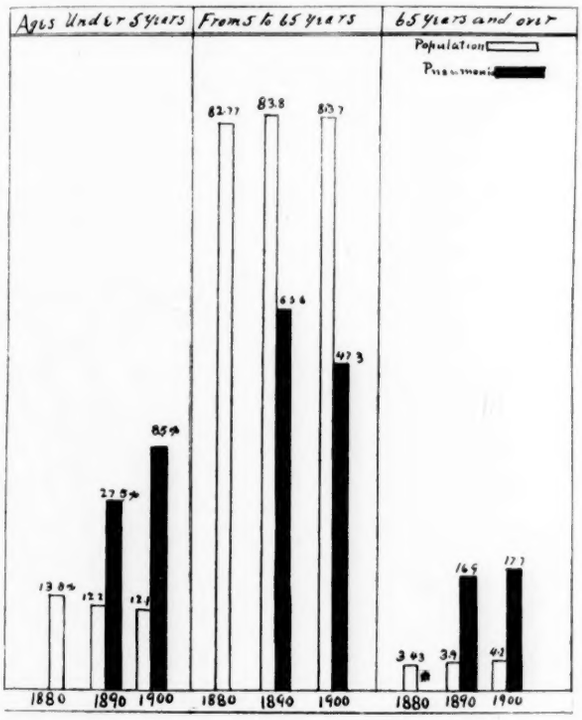


Chart 1.—United States census figures for 1880, 1890 and 1900. Population percentage in 3 age periods. Pneumonia mortality percentage in 3 age periods. *Pneumonia for 1880 unknown.

Census for 1890 and 1900 Klebs pointed out the interesting fact that the pneumonia mortality between the ages of 15 and 60 diminished from 1890 to 1900, while the periods of childhood and old age carried an increased burden of mortality. It also appears from the census statistics that the whole burden of the alleged increase fell on cities. Taking the study back to 1880 one finds the same distinctions, but I believe it has not before been remarked that the distinctions of age and of urban mortality were more marked in 1880 than in 1890. In 1890 37.7 per cent. of the pneumonia mortality of cities fell under the age of 15; in 1900, 45.5 per cent. fell on the same period of life; but in 1880 the children bore 48 per cent. of the pneumonia mortality. If these figures contained the whole truth of the matter we should believe that pneumonia under 15 had decreased in cities since 1880. But it happened that between 1880 and 1900 the age distribution of the population in American cities altered very materially.

A glance at the charts (1 and 2) showing the curves of population and of pneumonia mortality, distributed by quinquennial age periods, will bring into view the first correction which must be applied to mortality ratios.[1] Unfortunately the distribution of urban population in 1880 is not shown, but the general age distribution of population in that year shows that cities had a considerably larger proportion of children in 1880 than in 1900. The 45.5 per cent mortality of 1900 fell on 30.3 per cent of the population. If, as seems probable, the 48 per cent. mortality of 1800 fell on 35 per cent. of the population, then 48 per cent. in 1880 was really a lighter load than 45.5 per cent. in 1900. Here we find the true relations diametrically different from those which were at first apparent. Not a city in this country probably, and certainly not one of those cities where the apparent rise of pneumonia has excited most comment, can apply this fundamental test to its mortality statistics.

Next we must try the ratios by what we know, or think we know, about the causes of death.

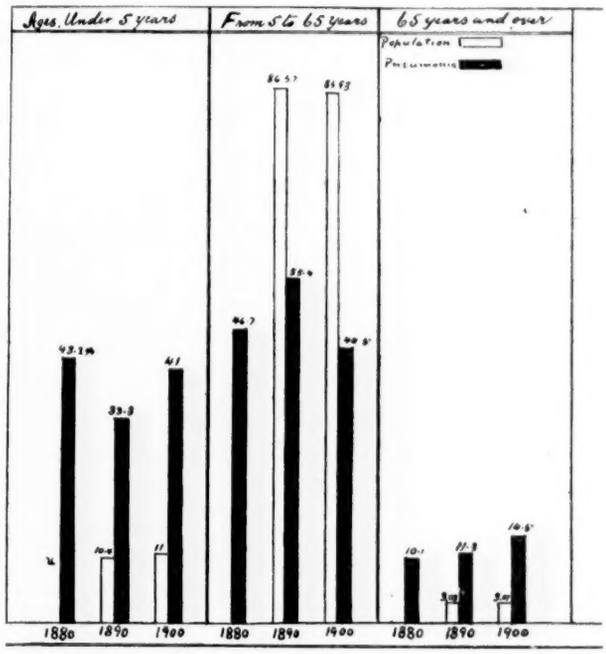


Chart 2.—United States Census, 1880, 1890, 1900. Percentages of urban population in 3 age periods. Percentages of urban pneumonia mortality in 3 age periods. Urban population for 1880 unknown.

The apparent ratios of death from pneumonia to deaths from all causes since 1850, as displayed in the United States reports, are as follows:

		Increase.	Per cent.
1850	37.55 per 1,000 deaths		
1860	68.74 per 1,000 deaths	31.19 points	83.00
1870	81.28 per 1,000 deaths	12.54 points	18.24
1880	83.30 per 1,000 deaths	2.02 points	2.5
1890	87.37 per 1,000 deaths	4.07 points	4.8
1900	106.1 per 1,000 deaths*	18.73 points	21.46

*Known causes.

Note that the twelfth census states for the first time the ratio of pneumonia to known causes. The previous ratios included unknown causes and need corrections which the reports appear to furnish, though unfortunately we can not rely upon their accuracy.

[1]The original charts (1 and 2), showing quinquennial age curves, could not be satisfactorily reproduced. The charts here substituted, showing but three age periods, illustrate the argument less forcibly. The same remark applies to Chart 12.

The deaths from unknown causes are said to have varied from 1850 to 1900 as follows:

1850	13.69	per cent. of the total mortality
1860	11.1	per cent. of the total mortality
1870	3.5	per cent. of the total mortality
1880	4.9	per cent. of the total mortality
1890	3.916	per cent. of the total mortality
1900	3.904	per cent. of the total mortality

Correcting our apparent ratios for pneumonia, we shall have: (Chart 3.)

		Increase.	Per cent.
1850	43.50 per 1,000 deaths		
1860	77.33 per 1,000 deaths	33.83 points	75.4
1870	84.23 per 1,000 deaths	6.90 points	9.0
1880	84.44 per 1,000 deaths	.21 points	.25
1890	90.06 per 1,000 deaths	5.62 points	6.6
1900	106.1 per 1,000 deaths	16.04 points	17.8

Meanwhile our views have altered as to what are unknown causes. In 1850 a death from "fever" was a known cause. So were deaths from "wasting," "worms," "teething," "rage," "fright," "grief," "congestion of the heart," "paralysis of the lungs," "swal-

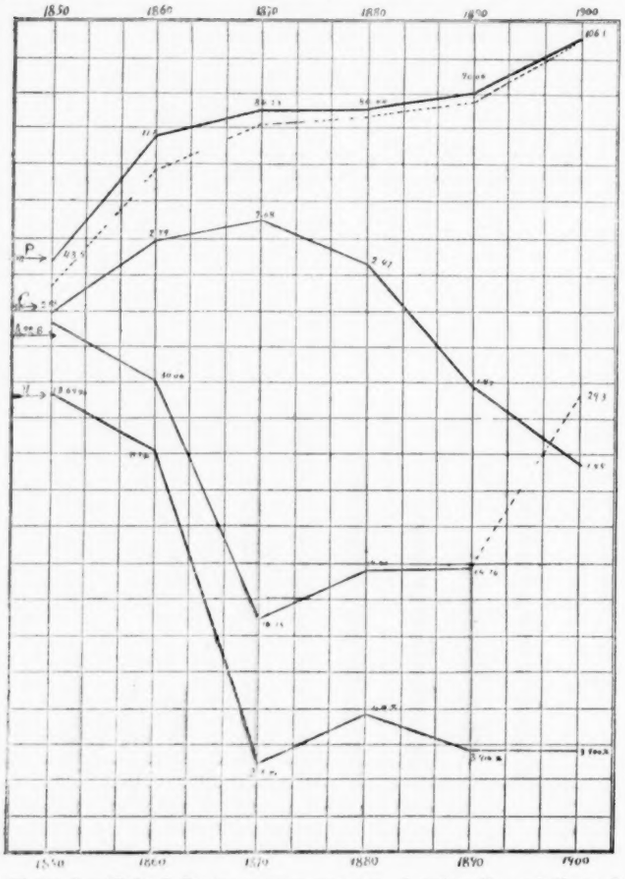


Chart 3.—United States census reports, showing the relation of pneumonia to unknown and indefinite causes of death. P, pneumonia; C, convulsions; A, old age; U, unknown causes.

lowed a penny when a boy," and other absurdities, traceable in the statistics down to the later nineties.

In 1900 the unknown class includes debility, wasting, heart failure, infantile atrophy, marasmus, inanition (above the age of three months), laparotomy, paracentesis, phlegmasia, pneumatosis, polydipsia, polyuria, surgical shock, strangulation, stricture, suppuration, tympanitis, typhomania, rupture of viscera, and 27 sorts of fever, all of which in 1870 were considered definite enough to be classified among known causes.

The percentage of unknown causes for the year of 1850, if brought into accord with modern ideas, would be much more than 13.7 per cent. of all the certificates examined, and the percentages for intervening years would be materially increased, thus further diminishing the differences in our pneumonia ratios. The published pneumonia rates for the various localities of this country are all uncorrected for unknown causes, and there is no means of ascertaining what the error is on this account, but certainly a descending scale beginning with a percentage of 13.7 in 1850 and ending with 3 in 1900, would not fully correct the ratio of pneumonia to known causes of death.

The state of Connecticut publishes a percentage table of unknown causes, though the ratios are not corrected by it. In 1878 the percentage of returns giving unknown causes of death was higher than that of the census for 1870, and this fact supports the view that the census percentages are very much too small. In 1878 Connecticut was a registration state, collecting her mortality data day by day at the time and place of death; while the United States Census Reports depend on the returns of a very few registration states and cities, supplemented, or confused as the case may be, by the

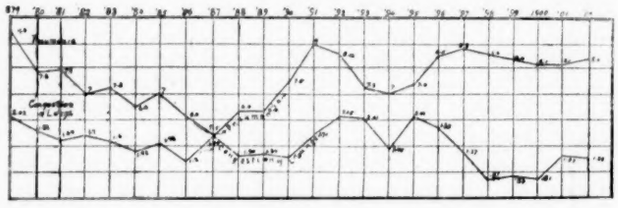


Chart 4.—District of Columbia, showing the symmetrical relations of pneumonia and congestion of the lungs with the striking effect of influenza's advent in 1890.

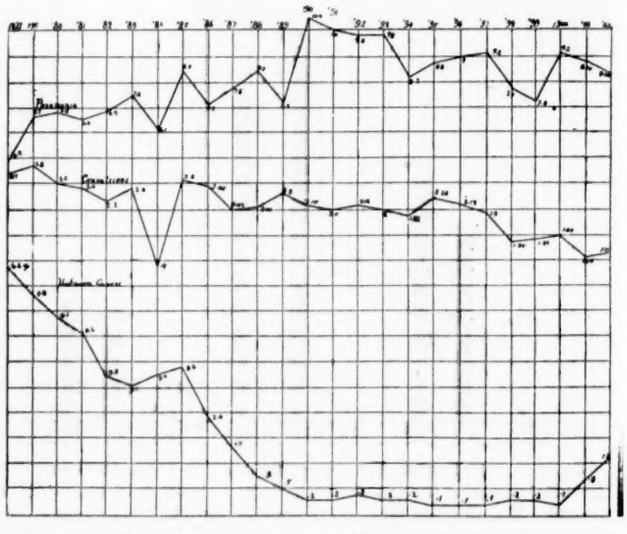


Chart 5.—Connecticut. Showing history of unknown causes. Illustrating the confusion between convulsions and pneumonia. Tendency to diverge in parallel motion. Relation of influenza suddenly appearing in 1890. Unknown causes are included in these ratios.

reports of unskilled lay enumerators making inquiry in May concerning all the deaths of a preceding twelve months.

The Connecticut percentage for unknown causes falls year by year from 6.6 per cent. in 1878 to two-tenths of 1 per cent. in 1890. It does not rise above three-tenths of 1 per cent. until 1901, when the international classification came into use, sending the ratio of ill-defined causes up in two years to 1.3 per cent. Fancy what would happen to the pneumonia ratios of Connecticut if they were subjected to a plus correction beginning at 1.3 per cent. in 1902 and augmented backward to 37.7 per cent. in 1880 (Chart 5).

No statement of unknown or ill-defined causes can be found in Chicago reports. In New York city reports since 1901 one can find the vague causes of death, and they amount to 4 per cent. of the total mortality. Baltimore has been employing the international classification since 1898, but the deaths classed as of indefinite causation are but six-tenths of 1 per cent. The Philadelphia registrar is cleverest of all (Chicago always excepted), for he only finds one certificate in two or three thousand too difficult for his skill at classification. The returns of Maryland, outside of Baltimore, are examined by a medical man, and so large a proportion as 6 per cent. of them are found incapable of classification and unfit for inclusion in the nosologic ratios.

Boston is silent about indefinite causes of death until 1902, when the international classification went into use, and the indefinite causes of death are found to be about 4 per cent. The Massachusetts registration reports give us a clue to the probable history of vague causes in Boston. The indefinite causes of death shot up in a remarkable way in 1868, when vague returns for deaths of infants were taken out of the infantile class and passed into the unclassified account for all ages. The percentage of unknown causes shot up from 1.9 per cent. to 5.4 per cent. of the total mortality, and from this point it fell to 1.17 per cent. in 1889. If the 4 per cent. correction for unknown causes in Boston in 1902 be multiplied backward to 24.8 per cent. in 1882, what will then be the relation of the ratios of any definite cause of death? If the experience of Massachusetts and Connecticut indicates so large a source of error in undefined causes, how can the error be less in Chicago or New York?

Moreover, the age distribution of the unknown and ill-defined causes of death shows that this correction applies but slightly to the middle period of life, 40 per cent. of it falling on ages under 5 years, and a small excess again on ages over 60. These corrections would undoubtedly moderate the remarkable angularity of the published pneumonia curves, and might even cause its apparent general rise to disappear.

The Massachusetts correction applied to the census figures would change the pneumonia ratio for 1880 from 83.30 per 1,000 deaths from all causes to 98.54 per thousand deaths from known causes, reducing the apparent rise of 22 points to a rise of less than 8 points in 20 years.

Statistical compartment No. 179 is not the only waste basket in our nosologic classification. Each class of diseases has a special receptacle for the certificates which appear to belong to a definite class of diseases but not to a definite nosologic title.

Old age furnishes a statistical history somewhat suggestive, though less interesting than that of undefined causes. The ratios of old age to the so-called known causes of death are, according to the census reports, as follows: (Chart 3.)

		Increase or Decrease.	Per cent.
1850	32.8 per 1,000 deaths		
1860	30.6 per 1,000 deaths	—2.2 points	—6.7
1870	16.75 per 1,000 deaths	—13.85 points	—45.9
1880	19.61 per 1,000 deaths	+2.86 points	+17.00
1890	19.74 per 1,000 deaths	+.13 points	+.66
1900	29.3 per 1,000 deaths	+9.56 points	+48.4

If old age were a cause of death, its ratio to total mortality should have steadily and very materially risen in 50 years, for the proportion of population above the age of 65 has risen. We find, however, that the mortality ascribed to this cause fell for twenty years, and in the next 30 years rose slightly. The apparent rise of mortality since 1890 can not, however, be explained on the view that a larger proportion of deaths were returned under this vague title. The experience of all registration states is contradicted by the figures for these wide apart years, for everywhere old age is diminishing as an alleged cause of death, though everywhere old age as a phase of human life is increasing. The deaths of the aged are nowadays far more definitely explained than 20 years ago. Of those lost to the indefinite account many have gone into the accounts of cancer and of kidney diseases, but some have gone into the pneumonia account. The apparent rise of pneumonia in the aged is fully accounted for by the increased population at advanced ages, added to the improved certification resulting from better diagnosis.

In the class of respiratory diseases there is a vague title which undoubtedly conceals part of the pneumonia mortality. It is "congestion of the lungs," a title signifying as much in vital statistics as it does in medical

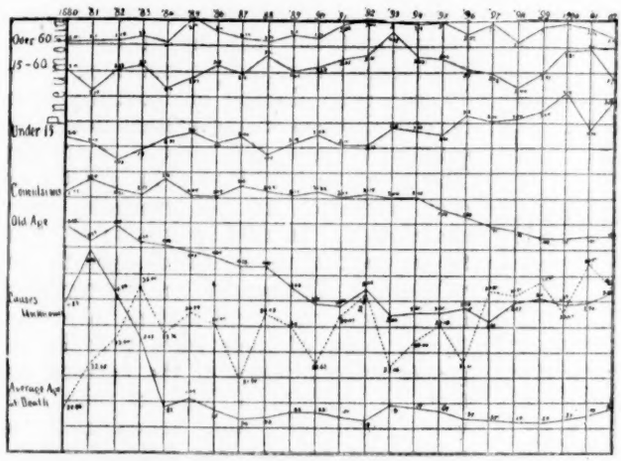


Chart 6.—Rhode Island. Showing an indefinite cause of death, "old age," declining while the average age at death increases and the pneumonia mortality above 60 does not rise. Under 15 years pneumonia rises while convulsions decline. These ratios are to total mortality, including unknown causes.

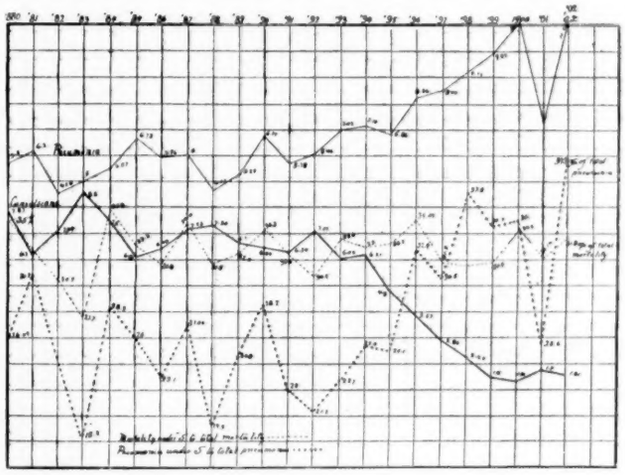


Chart 7.—Rhode Island. Showing apparent rise of pneumonia under 5, with coincident decline of convulsions and increasing ratio of pneumonia under 5 to total pneumonia. The decline of infantile mortality in general is also shown. Ratios are to total mortality under 5 and include unknown causes.

diagnosis, and no more. The District of Columbia[1] reports show the progress of this statistical item for many years. Observe chart 4, which shows pneumonia and congestion of the lungs diverging steadily year by year in parallel motion. Its responsiveness to the pneumonia curve shows that congestion of the lungs, in the District of Columbia at least, is not an empty title, although it has been unloading into the pneumonia column for years.

Certain obscure or ill-defined diseases bear relations to infantile mortality quite analagous to those borne by old age to the mortality above 60, and by unknown causes to the total mortality. One of these statistical titles has a close relation to the pneumonias of children, namely, "convulsions." Statistics of mortality from convulsions are available from 1850 to the present time. (Chart 3.) Their history in the United States Census is as follows:

	Per 1,000 deaths from all causes.	Per 1,000 deaths from known causes.
1850	18.8	21.8
1860	23.04	25.9
1870	25.9	26.8
1880	23.6	24.7
1890	18.9	19.7
1900	.....	15.5

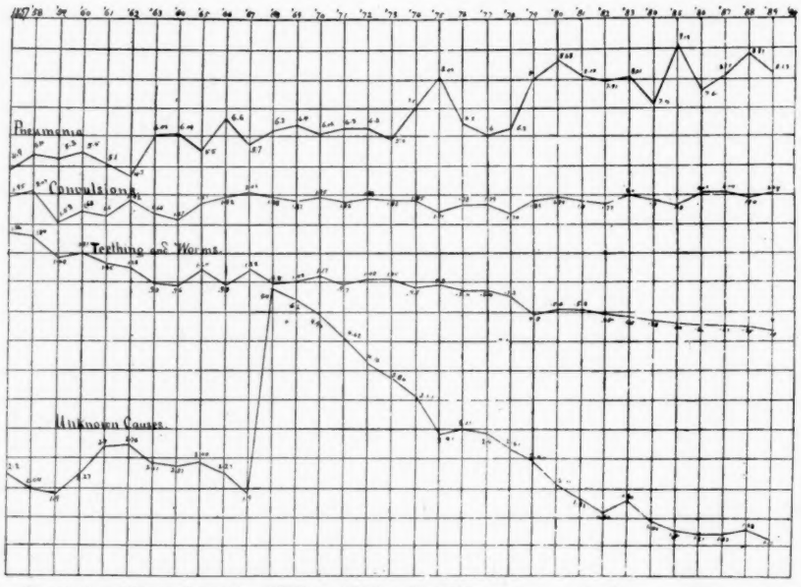


Chart 8.—Massachusetts, 1857 to 1890. Showing progress of the pneumonia ratios for all ages in relation with the progress of "unknown" causes and with two indefinite causes.

For the last decade, while pneumonia has been rising from 90.06 to 106.1, convulsions have fallen from 19.7 to 15.5 per 1,000 deaths from known causes. In the same period the death rate, for convulsions, per 100,000 population, has fallen from 56.2 to 33.1. The ratio of convulsions per 1,000 deaths from known causes at known ages has dropped from 33.5 to 20.4.

The relations of convulsions to quinquennial periods under 15 are as follows: In each 1,000 deaths under the age of 5 years there were charged to convulsions in 1890, 67.05; in 1900, 59.5. In each 1,000 deaths between 5 and 10 years, 15.44 in 1890, and in 1900, 11.3 were charged to convulsions. In each 1,000 deaths between 10 and 15 years of age there were charged to convulsions in 1890, 8.45; in 1900, 5.3. This is a remarkably consistent statistical exhibit of the progress of the mortality records toward definiteness.

Convulsions in children mask pneumonia more than any other cause of death, and one can safely say that a major part of the diminishing mortality from convulsions has, through improving diagnosis, been transferred to the pneumonia account, though from the statistical point of view this means no more than a step or two toward definiteness. At the present time every textbook warns one not to be misled by convulsions into overlooking pneumonia, and the importance of convulsions in the symptomatology of pneumonia is strongly emphasized. The diagnosis of pneumonia in children is indeed a very modern refinement of medicine, and dates from the comparatively recent inclusion of pediatrics among the essential subjects of college training.

One can not derive from the published statistics of large cities the relations of convulsions to pneumonia, but it seems quite significant that the weekly bulletin of Chicago has recently commented on the 40 per cent. decline of mortality from nervous diseases in the present decade, as compared with the decade preceding. The great part of that gain is a 60 per cent. reduction of the mortality from convulsions. It will be safe to say that 95 per cent. of the deaths charged to convulsions in Chicago fall on the period of life below 5 years, and that no more than 15 per cent. of these cases were in any proper sense diseases of the nervous system. A majority, at least, of these cases were pneumonia, and undoubtedly the pneumonia account has fattened on the alleged decline of nervous diseases.

The relations of pneumonia to convulsions are shown on several of the accompanying charts, and here, as in the case of congestion of the lungs, one observes a tendency to rise and fall together, particularly in the earlier part of the history. They diverge, however, the convulsions line pursuing a general downward course as pneumonia tends to rise.

For the state of Rhode Island I have been able to separate the pneumonia ratios by age periods, charting separately the pneumonia ratios for ages under 15 (Chart 6), from 15 to 60, and above 60. This brings out the relation of convulsions to infantile pneumonia rather better, although the statement is not quite fair to that relation. The relations of pneumonia under 15 to convulsions would be better stated as ratios to the mortality from known causes under 15 than to the mortality at all ages. The published figures would not yield these ratios, but Dr. Swarts has kindly furnished me figures which yield a still more striking illustration, namely, the relations of pneumonia and convulsions under 5 years to the total mortality under 5 years, the relations of pneumonia under 5 to pneumonia at all ages, and of the mortality under 5 to total mortality;

1. The apparent pneumonia history of the District of Columbia has attracted much attention as the "exception." The crude statistics indicate a decline of pneumonia. The age distribution of the population of Washington is very different from that of any other city in the country. In this respect it resembles none of the states adjacent. The population of Washington is deficient below the age of 20 and above the age of 60 years. It lacks precisely the elements of population which are said to have suffered the increased incidence of pneumonia. The average age at death has steadily increased, but it is doubtful if the average age of the living has materially altered in Washington in the past 20 years. If the statistics of Washington could be studied for pneumonia under the age of 5 years, it should and probably would appear that the returned mortality for pneumonia has increased, but the tables do not yield the necessary data, though Washington prints better statistics of mortality than any other large city in the country.

all for the period of time covered by the preceding chart (Chart 7).

The chart for Massachusetts contains, besides convulsions and unknown causes, the mortality ratios for "teething" and "worms." In 1897 only 1.3 deaths in "worms" are given definite consideration in the mortality statistics of Massachusetts down to the year 1900, when these items were lost by the adoption of the international classification. The relations of "teething" and "worms" to present-day mortality may very well be ignored, but their relations to our vital bookkeeping in the past may not be ignored. In 1857, 18.6 deaths in every 1,000 deaths at all ages, were attributed to "teething" and worms." In 1897 only 1.3 deaths in 1,000 are found under these heads. Different and more definite relations of infantile pneumonia are shown in Chart 9 from the experience of Massachusetts between 1889 and 1902.

A single registration office that I know of keeps separate account of the diseases of the brain and nervous system of children. My friend, Henry Mitchell, of New Jersey, furnishes this statistical account for comparison with the pneumonia account. The graphic

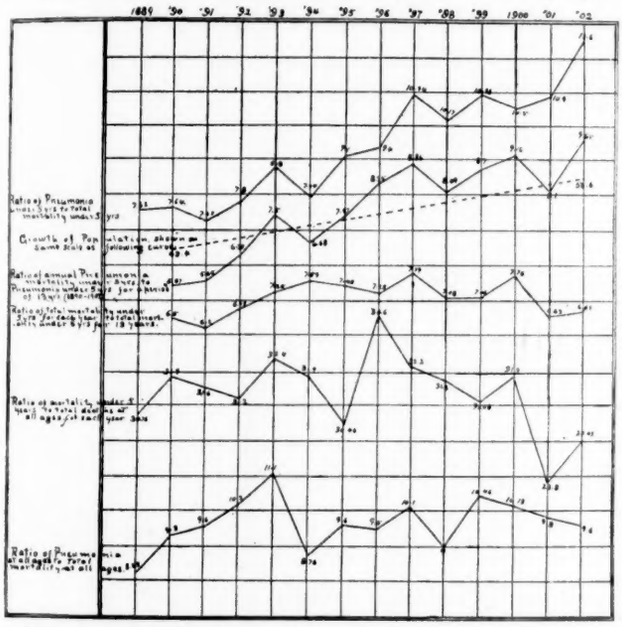


Chart 9.—Massachusetts, 1889 to 1902. Showing apparent rise of pneumonia under 5, increasing independently of the proportionate general mortality for that age period; showing the ratio of pneumonia for each year to pneumonia for 13 years, in the age period under 5, increasing but slightly in excess of growth of population.

statement is quite a remarkable one, showing the two curves separating in parallel motion so uniformly as to leave no doubt, in my mind at least, that the pneumonia account is fattening on the decline of its too responsive companion. Let me remind you again of the diagnosis of pneumonia in children. Its symptoms may include convulsions, stiff neck, opisthotonos, Kernig's sign, and the tache cérébrale, the cardinal signs, till recently, of meningitis. (Chart 10.)

For the state of Michigan I have been able to chart the ratio of pneumonia under 5 to the mortality from specified causes under 5, and to show the progress of convulsions and of unknown causes in the same relations. The relations of all these curves to the proportion of total mortality borne by children under 5 is also shown. A particular point of interest in this chart is the extremely irregular curve of unknown causes Of course the unknown causes pursued in reality no such eccentric course. Rather does it indicate that Michigan registrars were like the rest of us, long in acquiring the Socratic merit of knowing that they did not know. From 1884 to 1889 a large number of obscure causes of death in infancy appear to have been restored to the classified nomenclature. If the plan of compilation used in 1883 had continued in use to 1889, the ratios would have traveled as high as they do in the nineties until 1897, when a much more stringent exclusion of vague causes was practiced, sending up a ratio that otherwise would have fallen. (Chart 11.)

In this state, too, the advent of influenza in 1890 had a remarkable effect on both pneumonia and convulsions. Both the ratios fall a long way in obedience to the strong impression made by the grip on the medical mind and probably also on the registration office. This precipitate decline marks the period when the physicians and registration officers of Michigan came very near calling a spade a spade, though they have, in common with physicians and registrars elsewhere, been hiding influenza in the pneumonia account ever since that year.

One must regret that the mortality statistics of the large cities can not be studied from the published reports. It is a reproach that the mortality of these cities is not at least put into condition for study before publication. The fact that crude statements are published without any mention of their elements, is of itself sufficient ground for refusing them credit. For New York it may be said that it is difficult to find collateral evidence of the delusiveness of her pneumonia statistics. Chicago, however, does not confine her remarka-

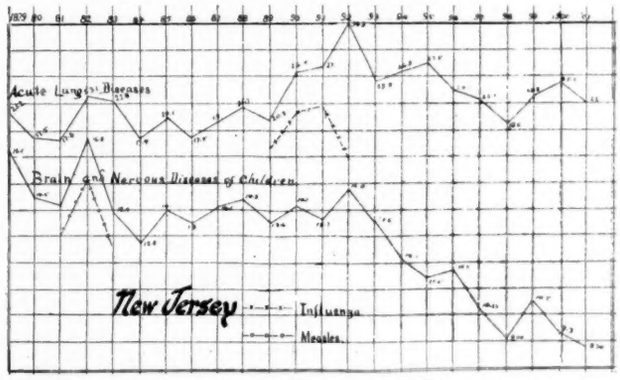


Chart 10.—New Jersey. Showing the mortality account of brain and nervous diseases of children unloading into the mortality account of acute lung diseases. The chart at 1892 suggests marked alteration either in the death certification or statistical treatment of influenza.

ble statements concerning mortality to the subject of pneumonia. Some of Chicago's detached utterances are difficult to reconcile. For instance, when we are told that from November, 1903, to May, 1904, there were 3,568 deaths from pneumonia, one may ask whereabouts on the population the mortality fell?

Above the age of 65, Chicago has but 2.46 per cent. of her population. The large American cities (including Chicago) have 3.07 per cent. of their population above 65. The Chicago figures for pneumonia impose a mortality 30 per cent. excessive on a population 20 per cent. short. One can not compound mortality at this rate.

At ages between 5 and 65 pneumonia is declining, and Chicago should derive a profit from this fact, for she has 86.3 per cent. of her people in this period, against the 85.93 per cent. in other large American cities. The excessive mortality can not fall on this period.

Chicago has below the age of 5 years, 11.24 per cent. of population, against 11 per cent. in this period in other large American cities. This part of the population, according to urban experience in recent years, must carry approximately 46.4 per cent. of the pneumonia mortality.

According to a recent bulletin the present proportion of deaths under the age of 5 is 21.8 per cent. of the total mortality, about 4 points less than it has been in years. The pneumonia mortality of Chicago is said to be 22.32 per cent. of the total mortality. The use of exactly these figures would result in an absurdity so gross that I hesitate to utilize it. Let us assume as Chicago's proportionate mortality what she says is her average, 26 per cent., and we shall have the statement that 26 per cent. of all deaths include not less than 37 per cent., and perhaps as much as 46 per cent. of the deaths from that cause which itself causes 22.32 per cent. of the total mortality. The arithmetical result of this sad disarrangement is that of every 1,000 deaths in Chicago under the age of 5 years, between 318 and 471 must have died of pneumonia.

There is no conceivable way of adjusting 3,568 deaths from pneumonia to the roll of the living or the dead in Chicago without producing as absurd relations as these. Instead of 21.8 per cent., 31.8 per cent. of total mortality for the period of life under 5 years is the lowest figure possibly consistent at the same time with human experience and with Chicago's reported pneumonia mortality. On the other hand, if 21.8 per cent. is approximately the proportionate mortality of Chicago for the age period under 5 years, the pneumonia mortality must be counted down from 3,568 to 2,880 before it reaches the limits of credibility

The bulletin says again that the present season is the most favorable in the history of the city so far as childhood is concerned. Great gratification is expressed at the "phenomenal infrequency of the contagious diseases." Since the first of the year there are said to have been but 9 deaths from measles, against 190 in a like period last year, but 91 deaths from scarlet fever against 167 in a like period last year, but 8 deaths from whooping-cough against 186 in a like period last year. Now Chicago is on earth. It is situated in one of the United States, is inhabited, and its people have the characteristics of the human race, except that they can suffer a phenomenal rise of pneumonia, associated with a more phenomenal fall of measles, scarlet fever and whooping-cough. In this respect the history of Chicago in 1904 is unique in the experience of Illinois, of the United States, of the world, and of Chicago.

These representations of the history of indefinite causes in general exhibit the progress of medical diagnosis and of registration in the general direction of definiteness. They show that improvement in medical diagnosis has a far more serious effect on the signifi-

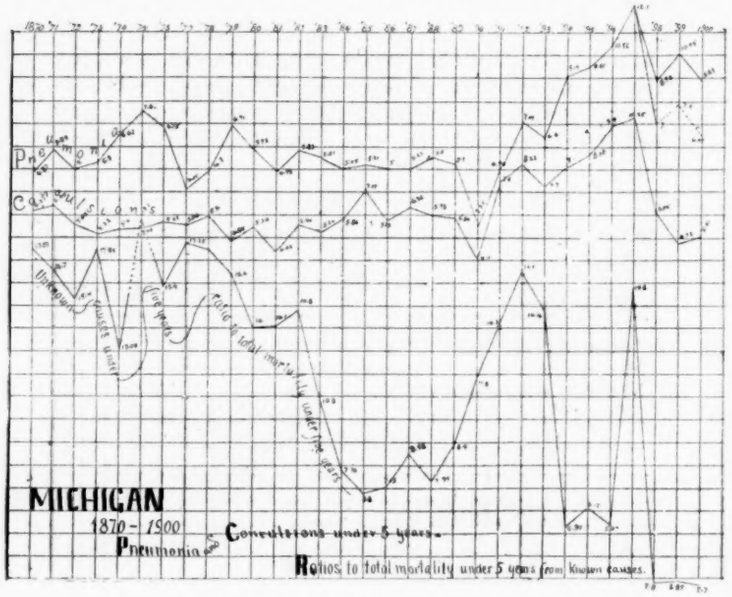


Chart 11.—Michigan. Illustrating the confusion of pneumonia with convulsions, especially in the years 1871, 1878, 1881, 1882 1883, 1888, 1889, 1890, independent of the fluctuations of unknown causes—in the years 1891, 1892, 1893, 1897, 1898 the same confusion exaggerated by the fluctuation of unknown causes. At the year 1890 the chart derives its peculiar character from the reference of many deaths under 5 to influenza—convulsions and pneumonia, both falling, notwithstanding a large rise in the unknown causes. Unknown causes are excluded from the ratios.

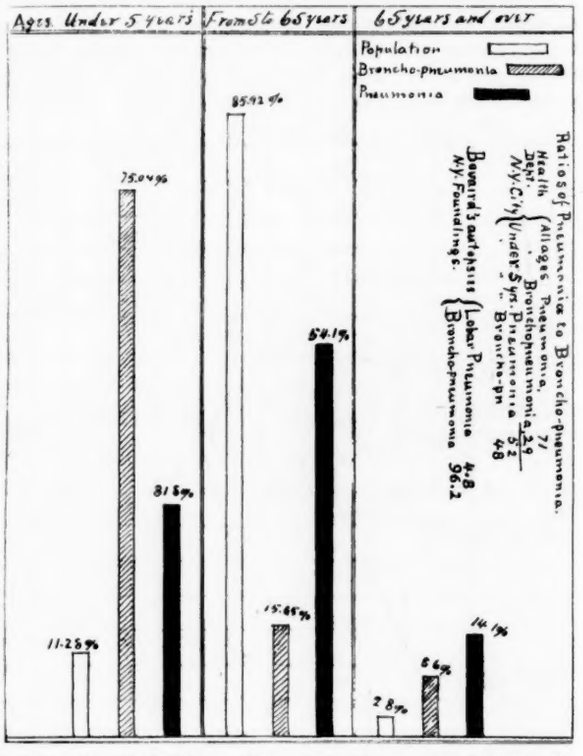


Chart 12.—New York City, 1901. Percentages of population in 3 age periods. Percentages of pneumonia mortality in 3 age periods. Percentages of bronchopneumonia in 3 age periods.

cance of the figures than is generally admitted. In the history of the very indefinite and unknown causes one sees so large an error as to vitiate the statistics for practically all the definite diseases, which are said to be rising. In the infantile mortality especially, one sees a number of vague causes of death gradually disappearing from the tables, while most of the definite affections are at the same time declining. There is but one possible explanation of the declining mortality charged to such vague statistical accounts as teething, worms, convulsions, brain and nervous diseases of children, and that explanation is that deaths long ago attributed in large numbers to these causes are now receiving at the hands of physicians more definite nosologic reference.

Certain important diseases of infancy are declining, and their decline can be accounted for. A single rising account has appeared in the history of infantile mortality, and the conclusion is to me irresistible, that the one

rising account has profited by the decline of the indefinite causes of infantile mortality.

If such corrections as I have suggested be applied to the statistics, we shall, perhaps, not seriously diminish the importance of pneumonia as a cause of infantile mortality at the present time. So far, indeed, the argument simply brings the past and unsuspected importance of pneumonia into view, and at that point we should have to stop if pneumonia were a definite cause of death. But the term pneumonia is not, either in the tables or in its medical use, a definite statement of a cause of death. In medical parlance pneumonia has grown less definite in the course of time. In statistics the term is less definite than in medicine, although it preserved the appearance of definiteness until the adoption of the international classification, when the comparatively modern compounded word, bronchopneumonia, received a separate index.

In the United States census for 1900, although the international classification is used, one finds under the head of pneumonia no differential statement such as this classification provides for. For the local registration offices in general, one may say that differential statements can rarely be found in the published records where the international classification is not used, while in the offices employing this classification differential statements are obtainable only for the past three or four years.

All the statistical sources utilized in this study give differential statements for a total of 13,608 deaths, of which 9,263 were returned under the head of pneumonia, and 4,340 under the heads of bronchopneumonia and pleuro pneumonia.

The published reports for New York furnish hardly any and those of Chicago no means whatever of determining the probable line of cleavage between the two sorts of pneumonia, but if the per cent. derivable from the figures given hold good for these cities, 32 per cent. will be cut off the returned mortality for the past four years. One can not say, however, that the 32 per cent. error which is fairly chargeable against the records for the years 1900-1902 would hold good for any equal antecedent period. The information yielded by the New York City report for 1901 is shown in Chart 12.

The statistics for Boston throw a curious light on this point. The pneumonias were differentiated in that city in the published reports before 1900, but they were distributed in such a way as to make it appear that lobar pneumonia has been decreasing, while bronchopneumonia has been increasing. The bronchopneumonia for 1896 was 15 per cent. of the whole pneumonia account, in 1897, 17 per cent., and in 1899, 22 per cent. Since 1900, 46.7 per cent. of the pneumonia account of Boston is made up of deaths returned as caused by bronchopneumonia.

One might say that it is right to add bronchopneumonia to pneumonia now, the figures should be recovered and added to the pneumonia of the past. But the rise of bronchopneumonia does not mean in medicine and it should not mean in statistics anything added to pneumonia. Traced backward, bronchopneumonia will be found to disappear, the greater part of it at least, in the bronchitis account.

The correction for certificates returned under the head of bronchopneumonia is a discount applied to the pneumonia ratios at a rate beginning with at least 32 per cent. in 1902, and diminishing year by year to zero at about the year 1880.

This would still leave a considerable though indeterminate amount of bronchopneumonia in the figures for recent years. The terms pneumonia and bronchopneumonia, although convertible terms in statistics, are not convertible terms in medical use. No physician ever writes "bronchopneumonia" on a death certificate when he means lobar pneumonia, but many physicians write simply "pneumonia" when they have recognized the cause of death as bronchopneumonia. Bovaird's recent figures for 500 autopsies at the New York Foundling Asylum gave 95.2 per cent. of bronchopneumonia to 4.8 per cent. of lobar pneumonia. Fancy the curves on these charts cut to fit this ratio, and one can see the end of the pneumonia sensation. If the bronchopneumonia could, however, be eliminated or distinguished, the pneumonias remaining would still lack a definite significance.

In the manual which presumably governs the practice of officers using the international classification the instructions as to what returns are to be included under each of the two heads are interesting. Pneumonia includes deaths certified as due to acute, alcoholic, apical, croupous, infectious, bilious, typhoid, diplococcus, lobar and vesicular pneumonia, lung fever, inflammation of the lung or chest, peripneumonia, pneumopericarditis, pneumopleurisy, splenopneumonia. The title does not include death certified as due to bacillary pneumonia, caseous, catarrhal or interstitial pneumonia.

Bronchopneumonia includes catarrhal pneumonia, aspiration pneumonia and deglutition pneumonia. The bronchopneumonia of the census does not include the returns of capillary bronchitis. Capillary bronchitis is counted in the census office and in several local registration offices as bronchitis! One has no means of ascertaining what practice was followed previous to 1900, but it is certain that the practice differed from this. Practically everywhere the total pneumonia account includes all the death certificates in which the word pneumonia was used without reference to an antecedent disease of equal or greater statistical importance. In the District of Columbia the pleurisy account carries the pleuropneumonia mortality. The hypostatic, traumatic, surgical, septic, terminal and ether pneumonias are included in the pneumonia account whenever the death certificate fails to mention an antecedent condition having recognized importance as a cause of death.

The age distribution of bronchopneumonia is interesting. A very large part of it—75 per cent.—falls on ages under 15, but no part of life appears to be exempt from it; 25 per cent. is far too much to charge to ages above 15. I have charted the pneumonia and bronchopneumonias separately for New York by ages. Enormous as the disparity appears below the ages of 5 years, the actual contrast is greater. (Chart 12.) If the bronchopneumonias between 15 and 50 were all charged to tuberculosis, the bronchopneumonia statistics would be better and the tuberculosis statistics no worse. Above the age of 60 the use of the term bronchopneumonia does not express antemortem diagnosis.

Our study has gradually narrowed down to the question of pneumonia under 15, and in this period to the one-ninth or so of population under 5 years. Here we find that something like 90 per cent. of the recorded pneumonias have extremely various etiologic relations, and have no right whatever to consideration under a single nosologic head. Outside of mortality statistics, such thing as a primary bronchopneumonia is but

rarely recognized. In a great majority of instances the essential cause of bronchopneumonia can be determined clinically, and should be recorded on the certificate. Possibly since 1890 the diagnosis of respiratory affections in childhood has been in a single respect more difficult. Since the advent of influenza many bronchopneumonias are perhaps not referred to their etiologic factor so easily as are the bronchopneumonias of measles, whooping cough, scarlet fever, diphtheria, etc. Bronchopneumonia is a secondary or complicating condition, and whenever the primary causative factor is known a death from bronchopneumonia should receive appropriate statistical reference. When the certificate fails to designate the proper statistical reference, the record should at least be disposed of in such a way as not to obscure the relations of an agent of death as definite and important as lobar pneumonia.

There is no proof that lobar pneumonia has grown more prevalent or more fatal at any period of life. There is no considerable evidence of an increase at any period of life save that under 5 years, and here pneumonia has simply come into view and demands some consideration. Pneumonia is not the "Captain of the Men of Death." The claims of six destroyers stand between pneumonia and the distinction of leadership.

CONCLUSIONS.

1. The returned mortality of the United States for ages between 15 and 60 during the past twenty years shows a diminishing mortality from the class of respiratory diseases commonly returned as pneumonia. Of the pneumonias occurring in this age period a large majority are true lobar pneumonia. Fifty-eight and a half per cent. of the population of the United States, and 66.5 per cent. of the population of cities are between the ages of 15 and 60. The incidence of lobar pneumonia on a major part of the population is therefore diminishing.

2. The return mortality of the United States, for ages above 60, indicate that the mortality from the class of respiratory diseases commonly returned as pneumonia has increased from 21.9 per cent. to 22.6 per cent. in ten years, the population at the same age in the same period having increased from 6.2 to 6.6 per cent.

The urban mortality for the same age has grown in ten years from 16.1 to 19.5, and has been accompanied by an increase of population in that age period laterally from 5.23 to 5.27 per cent. Several pathologic conditions added to the group of pneumonias, and not provided for in statistics, are included in the returned mortality of pneumonia for ages above 60. For 6 per cent. of our total population lobar pneumonia may have increased in the past ten years, though satisfactory evidence of an increase has not been offered.

3. The return mortality of the United States for ages under 15 (about one-third of the total population) shows an apparent rise of mortality for the group of respiratory diseases commonly classed as pneumonia. The acute respiratory diseases of children were in former years commonly mistaken for affections of the nervous system. Year by year for thirty years increasing numbers of deaths formerly found in the indefinite accounts, and in the class of nervous diseases, have been transferred to the class of respiratory diseases and especially to the pneumonia account.

Of the mortality recorded as due to pneumonia under the age of 15 years, not more than 10 per cent. is due to lobar pneumonia. A small though considerable incidence of lobar pneumonia in children under the age of 5 has come into view of late years, but there is no evidence that lobar pneumonia has increased in this age period. The remaining 90 per cent. of the recorded mortality ascribed to pneumonia includes the conglomerate group of bronchopneumonias, nearly all of which are secondary or complicating causes of death, and should be referred in the mortality tables to the primary causes of death.

4. Since 1890 a new cause of infantile mortality has come into view, an acute respiratory infection, attacking infants of 2 years old and under, commonly returned under the diagnosis of pneumonia, sometimes returned as due to a disease of the nervous system, and probably due to influenza.

5. The mortality registration of American cities is in general very poor. The crude rates and ratios offered by certain cities as evidence of a rising pneumonia mortality are inconsistent with the mortality statements concerning other causes of death, and with the characteristics of the populations concerned. They represent a perversion of statistics which must eventually bring discredit on American mortality registration.

DISCUSSION.

DR. BENJAMIN LEE, Philadelphia, said that we all remember the criticism of the individual who divided lies into three classes—lies, confounded lies and statistics. Dr. Lee does not second that particular definition of statistics. At the same time he could not help thinking that we were discussing two propositions supposed to be founded on statistics, both of which have been accepted as definite and fixed, and neither of which, to his knowledge, has ever been definitely proved. It seems to him that we might expect 75,000,000 people to consume more alcohol than 10,000,000, but, taking our people as we find them, he does not think that any one can prove that at the present time intoxication is a vice of this country to the extent that it was 100 years ago. At that time a man was hardly considered a gentleman who did not go to bed drunk, while at the present time it is the exception for a respectable man to go to bed drunk. We may be increasing in the use of certain forms of alcohol, but those are the forms which are the least pernicious. The man who drinks a pint of beer does not drink as much alcohol as the man who drinks a glass of sherry, and very much less than the man who drinks an ounce of whisky. It does not seem to him that our present diseases are more due to the use of alcohol now than they were fifty years ago. There are many factors to be considered when we come to make up our minds as to statistical data and results in medicine. One of the most important factors is the question of diagnosis, and following that is the question of nomenclature. Both of these, in the period during which more or less accurate statistics have been kept, have made wonderful changes. Our advances in diagnosis have been very remarkable, and Dr. Fulton has pointed out that an immense number of diseases are now properly reported as pneumonia which formerly were not so reported. Comparatively few physicians now report infantile bronchitis and catarrh. Most of these cases are probably now reported as pneumonia.

DR. CRESSY L. WILBUR, Lansing, Mich., regrets that it is so extremely difficult to go back over the records of any state, or the United States, and obtain thoroughly reliable data as to the age distribution of any particular disease. He said that, in regard to the variations in the distribution of unknown causes in Michigan, perhaps Dr. Baker can throw some light on the matter, as the early records were compiled under Dr. Baker's personal supervision. Not only the methods of compilation change, but the men change who make the compilations. Dr. Baker, in the early compilation of the Michigan statistics, formed a book of practice, which served as a guide to the work. The statistics at that time were compiled according to the classification of Dr. Farr. During Dr. Wilbur's first experience in compilation he used this classification, but

he had no guide to its practical employment. He simply used his best judgment. At the Montreal meeting of the American Public Health Association, in 1894, he suggested a new classification. At that time there was no hint or promise of an international agreement. As soon as there was a prospect of a successful international classification, beginning with the Bertillon system in 1898, he began to use it. This system was revised in 1900, the revision going into effect in 1901, since which time he has adhered strictly to the "international classification," as it is now called. That makes four systems that have been used in Michigan, besides one system which was employed by three different compilers, varying in methods to some extent. This shows the necessity of having a proper guide in this matter if our statistics are to be used for comparisons even in the same state, and the international classification, if strictly followed, should give more satisfactory results than those shown by the diagram. The United States Census reports for the year 1900 were for the census year 1899-1900. The international classification was not used for that compilation, so that the results shown in the last line should compare with those for the preceding censuses. The International Commission of Paris in 1900 did not seem to give this question of the proper compilation of pneumonia very much consideration. A distinction was made between bronchopneumonia and "pneumonia," the latter supposed to correspond closely to croupous pneumonia; but, unfortunately, among the deaths reported from "pneumonia" are included many deaths from bronchopneumonia or catarrhal pneumonia, and the statistics are thereby vitiated. Dr. Tatham of the English Registrar General's Office recently introduced a new classification, and now makes four divisions of pneumonia. Epidemic pneumonia is placed among the infectious diseases. Bronchopneumonia or catarrhal pneumonia and acute lobar or croupous pneumonia are stated separately. In the fourth class appears "pneumonia," unqualified, with indications that it is an indefinite term, not to be chosen if possible to specify more definitely. Dr. Wilbur stated that the statistics of pneumonia are also confused by the fact that many deaths from "pneumonia" occur as the terminations of chronic diseases and are merely terminal infections or complications. When pneumonia is the result of whooping cough, measles, or any of those diseases, it should be charged to the primary cause.

DR. J. N. HURTY, Indianapolis, said that, attracted to this subject by constant reference of the bulletin of the Chicago Board of Health, he commenced to study the matter very closely in Indiana and tabulated and compared the pneumonia periods, as he called them, namely, November, December, January, February and March of each of the four last years. He found that during the last period there were fewer deaths than the average of the entire four years, and so, evidently according to our statistics, while there was no increase in the total deaths from pneumonia, still, when they compared the results by the different ages, they found an increase in those under 5 years of age. There were more pneumonia deaths during the last period than the average for the four years. During the first period, November and December, 1899, and January, February and March, 1900, there were quite as many deaths from pneumonia in Indiana as during the same periods in 1903 and 1904. The weather of the last period was very bad, being very raw, cold and wet. The humidity was high. In the first period there were quite as many pneumonia deaths, but the weather was comparatively mild, so he concluded that the weather was not causing an increase, if there was an increase, which did not appear by these comparisons. In one particular the two periods were alike in having the same number of deaths from pneumonia and in this, that measles, influenza and whooping cough prevailed extraordinarily in both those periods, and in the lower periods they did not prevail, but Dr. Hurty could not find any similarity in the weather to account for it.

DR. HENRY B. BAKER, Lansing, Mich., stated that from his standpoint the method of study is fundamentally wrong. He does not think we know from that method of study whether pneumonia is increasing or decreasing. It is not a satisfactory method to determine this question by means of the ratio of deaths from pneumonia to the deaths from all causes, because the deaths from the other causes are changing. Dr. Fulton or someone should take these figures and give us the relation of the deaths from pneumonia at certain ages to the population at those same ages. We are indebted to Dr. Fulton for calling attention to the influence of these other questions on the subject, but it is too early to apply these corrections which he seeks to apply. We haven't anything to apply them to to the best advantage.

DR. BENJAMIN LEE, Philadelphia, believes that a board of health without a proper system of registration of vital statistics is a truncated animal, and he is simply longing for the time when Pennsylvania will take as firm a stand as any other state. There are one or two points in regard to this question of pneumonia which have not been touched on. One is the influence of the presence in this country for the past ten years of the grip germ. Unquestionably a great many of the cases reported as pneumonia take that special form. The other point is the greater prevalence of pneumonia in cities as compared with the rural districts. Dr. Lee believes that street dust is a great factor in producing the disease, and whether that street dust contains the pneumococci or whether it contains some other poison is in each case an open question. He believes that long periods of dry weather, during which the atmosphere becomes filled with dust, are more frequently a source of danger than rainy weather. A most interesting experiment was tried in the city of New York many years ago. They were laying out a large park and had set out a great number of elm trees, and during the first two years all those trees died. When they came to take up the trees to find out the cause of death they found that all the roots of the trees were dyed blue, and on investigation they discovered that the dye material was Prussian blue, produced by the reaction of iron, potash and nitrogenous material in the street dirt, which had been used as a fertilizer. Dr. Lee has never followed up the question as to what effect the breathing of dust laden with Prussian blue would have, but he can conceive that it would have a very unpleasant action on the mucous membrane of the air passages. He does not believe that the question of street dust is at all ended when we talk only about the bacilli. He believes that there are other impurities and poisons in the street dust which may affect the pulmonary tissues disastrously.

DR. G. T. SWARTS, Providence, R. I., stated that the changes in nomenclature have been so rapid within the last four or five years that it would be difficult to compare the results with previous years. One could hardly believe the conditions existed as they are reported, and with the intent of learning something of those conditions since last February he has written to every physician who has reported the cause of death as pneumonia as to whether there was any known exposure to another case. That was for the purpose of determining if boards of health could profit by requiring isolation. At the present time it would seem that the amount of known exposure is very slight indeed. In answer to his inquiries he noticed that sometimes a physician would correct his diagnosis and state that the attack of pneumonia followed influenza. That would lead us to go back to what we call the primal cause of pneumonia, and whether the pneumococcus was present or some other organism as in measles or scarlet fever, and which has produced the inflammation of the lungs which simulates pneumonia. Until we can educate physicians to make an exact diagnosis and be more particular as to what we, as registrars, desire from them our statistics will still be in a chaotic state. When we attempt to draw conclusions we are very apt to be led astray unless we know the physician. The physicians of the state of Rhode Island are taking up this subject with interest, especially as they have been pestered for the last few years with questions from the registrar as to what they mean or do not mean to give as the cause of death.

DR. JOHN S. FULTON said that this subject, like many others of the sort, is in a state of confusion. To show that was one of the purposes of the paper. The argument which he made is for the most part destructive, but is none the less a necessary

argument. The registration offices in this country do not furnish the data necessary to a satisfactory study of the subject. Accurate numerical statements concerning the elements of population and concerning the distribution of mortality are lacking. The heterogeneousness of some of the mortality accounts has not been sufficiently considered by many students of the subject, and some registration offices have published misleading and alarming statements based on very insufficient data. The influence of improving diagnosis has not been accorded its due importance and the history of indefinite causes of death has not been taken into account. To his mind one of the most interesting phases of mortality registration is its progress toward definiteness. As medical knowledge improves the indefinite account loses by the medical reference of a certain number of deaths to their true cause. At the same time the indefinite account gains by the statistical reference of deaths medically returned under very vague or obsolete nosological heads. The weight of movement is toward definiteness but some of our growing accounts have not become definite, and one or two, though having very definite appearing titles, such as pneumonia, have actually become less definite. The progressive unloading of the "unknown" account, of "teething" and "worms," "old age," "convulsions," etc., into other accounts gives as a general result an exaggerated view of rising accounts and a disguise of falling accounts, but no one dare say, without careful examination, how any particular account has been affected. The pneumonia account has received substantial accretions from certain more indefinite accounts, but the term pneumonia has not meanwhile grown more definite, but less so. No one is prepared to tell us exactly what the pneumonia account includes, but in the period of life below 5 years 85 per cent. of the pneumonia mortality consists of the secondary bronchopneumonias, having a variety of etiologic relations. In the present state of knowledge it matters little that the pneumococcus is more or less loosely related to many of these cases, for the relations of pneumococcus even to the massive pneumonias, which physicians have in mind when speaking of pneumonia, are not yet satisfactorily affirmed. A consideration of the figures seems to Dr. Fulton to suggest rather strongly that about 1889 a new factor entered into the pneumonia mortality of young children. This new factor may not have been the freshly imported strain of influenzal virus, but it certainly was not a new strain of pneumococcus. The relation of influenza to infant mortality has not been regarded as very important, but he suspects that the apparent pneumonia mortality would be very much reduced by successful prophylaxis of influenza, and that profits therefrom would be realized most amply by that part of the population under 5 years of age.

THE MANAGEMENT OF HERNIA IN INFANCY AND CHILDHOOD, WITH RESULTS OF OPERATIVE TREATMENT.*

WILLIAM B. COLEY, M.D.

Surgeon to the General Memorial Hospital: Associate Surgeon to the Hospital for Ruptured and Crippled.

NEW YORK CITY.

The fact that at least one-third of all the cases of hernia occur in children under the age of 14 is sufficient evidence of the importance of this subject.

Most cases of hernia in infancy and childhood are regarded as congenital, but this is a term that has given rise to much confusion. By congenital hernia we do not mean a hernia that existed at birth, but a hernia due to the failure on the part of Nature to close the process of peritoneum that has followed the testis in its descent into the scrotum. If the hernial sac is found at operation to communicate with the tunica vaginalis of the testis, we speak of it as congenital hernia. If, however, the pouch of peritoneum has become closed off just above the testis, but still leaving an open funicular process extending through the canal, or even into the scrotum, we still have a condition quite as favorable for the development of a hernia as in the former typical congenital variety. This latter variety, strictly speaking, would be a congenital hernia, although there is no way of differentiating it, anatomically, from an acquired hernia.

It is probable that the great majority of herniæ in children under the age of 5 or 6 years belong to these two varieties, and owe their existence to a congenital or preformed hernial sac. An analysis of our own series of operations for hernia in children shows that in more than half of the cases there is no communication between the hernial sac and the tunica vaginalis. Given the existence of a congenital or pre-formed sac, the immediate or exciting cause may be anything that greatly increases the intra-abdominal pressure, e. g., crying, coughing, straining at stool, constriction of the abdominal cavity by too tight bands.

The main question under consideration in the present paper is how to treat a hernia after it has developed, and the first point to decide is: Shall the treatment be mechanical or operative?

We believe that truss treatment should always be the method of choice in children under the age of 4 years, although not a few surgeons, both here and abroad, are now advocating operation as the primary method of treatment in infants. While I believe it a good general rule not to operate until the age of 4 years has been reached, there are certain important exceptions:

1. If there is a history of strangulation that has become reduced by taxis, I believe that an operation is indicated, no matter how young the child.

2. In cases in which, despite carefully directed truss treatment, the hernia has become irreducible, or reducible with difficulty, I think early operation should be advised.

3. In cases in which the rupture can not be controlled by a truss and, as a consequence, is gradually increasing in size.

4. In all cases of femoral hernia, the reason for prompt operation in this class being that a cure by persistent truss treatment is practically unknown at any age.

5. Immediate operation is indicated in all cases of hernia associated with reducible hydrocele or fluid in the hernial sac, inasmuch as it is impossible to control the rupture by means of a truss, and there is, hence, nothing to be gained by waiting.

RESULTS OF MECHANICAL TREATMENT IN CHILDREN.

Roughly speaking, I believe that herniæ in infants and children under the age of 4 years can be cured by carefully directed truss treatment in about two-thirds of the cases, although it is probable that, in after years, a considerable percentage will relapse.

Beyond the age of 4 years, in a fair proportion of the cases, a cure can be effected by means of a truss, provided the truss is properly fitted in the first place, and the child is regularly seen by a surgeon for a period of not less than two years.

METHOD OF MECHANICAL TREATMENT.

There are several kinds of trusses, all of which are of nearly equal value in the treatment of hernia in children. Personally, I consider the "opposite-side" or "cross-body" truss (Knight truss, Fig. 1) the best. It consists

* Read in the Section on Diseases of Children of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

of a light steel frame, extending three-quarters the distance around the pelvis, the remaining distance being covered by a strap. The spring is covered with rubber tubing, and the pad is attached to a short steel arm fastened at right angles to one end of the spring. The spring is so tempered that any desired pressure can be easily secured. Another very good form of truss is the frame truss of the Hood or Pomeroy type (Fig. 2).

A truss can not be applied too early. As soon as a rupture in an infant has been recognized, the truss should be immediately fitted and should be worn night and day.

Umbilical hernia in children generally develops during the first year of life, and in the great majority of cases can be cured by mechanical treatment. Operation is very seldom indicated. One of the best methods of treatment in these cases is by means of a small wooden button mold, covered with rubber plaster and placed over the opening. This pad is held in place by a circular strap of rubber plaster, two inches in width, entirely surrounding the abdomen. Care should be exercised not to cause any appreciable constriction. This should be changed every week or ten days. In rare cases with very large opening, the hernia may be found to persist despite careful treatment. In these cases operation should be performed. The method of excision of the umbilicus, including the hernial sac, with careful suture in three layers—with or without overlapping the fascia—will almost always result in a permanent cure.

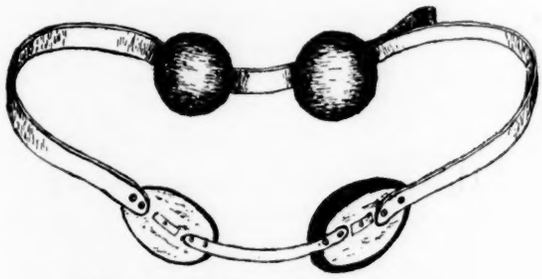


Fig. 1.—"Hood" or "Pomeroy" truss.

Epigastric herniæ are not very rare in children, and if the opening is large enough to admit the tip of the index finger an operation will probably be needed to effect a cure. They do not tend to spontaneous cure, as is generally the case in umbilical hernia in children.

DURATION OF TREATMENT.

If a child has reached the age of 4 years and the rupture has not been cured, as shown by its occasional appearance when the truss is removed, then an operation should be performed. If a rupture is first noticed in a child over 4 years of age, it is a question whether to employ mechanical or operative treatment. At this age the percentage of cures by truss treatment is comparatively small, far less than in infants. In addition, the treatment, in order to be of any avail, has to be prolonged over a period of from two to three years which, to a dispensary child, means a great deal of trouble and much loss of time to the parents in bringing the child regularly to the hospital or dispensary. Hence there is much to be said in favor of an operation, which is practically sure to effect a cure in from two to three weeks' time, and, furthermore, is almost entirely free from risk. It has been our former practice at the Hospital for Ruptured and Crippled to treat all children with comparatively small and easily held ruptures for a time with a truss. However, of late the results of operation have been so uniformly satisfactory that we are now inclined to advise operation in the majority of such cases, especially in dispensary children, who seldom get proper supervision of the truss at home.

METHODS OF OPERATION.

It seems to be the impression that the radical cure of hernia in children is a much simpler matter than in adults, and that almost any method will accomplish the desired result. While it may be admitted that the results of operation in children during the past decade have been a trifle superior to those obtained in adults, I believe this fact due rather to improved methods of operation than anything else. I need only cite a series of 20 cases operated on at the Hospital for Ruptured and Crippled prior to 1890 by the methods of Socin and Czerny, with 50 per cent. of relapses in less than a year after operation, to disprove the contention that hernia in children can be cured by any method of operation.

To operate in children in which we have to separate the hernial sac, as thin as tissue paper, and avoid cutting or tearing the slender cord, requires far more care and delicacy than the operation in the adult. With the

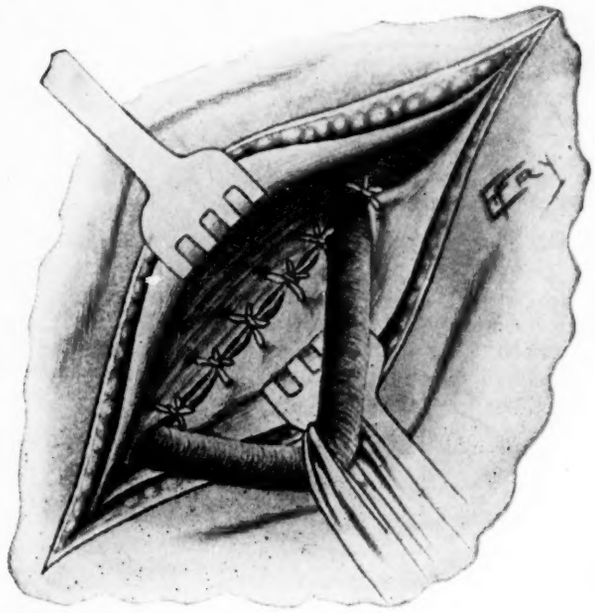


Fig. 2.—Bassini's operation (deep sutures), showing extra suture above the cord.

operation carefully and skillfully done by the Bassini method, or possibly by the same method without the transplantation of the cord, the results are almost perfect.

I have as yet never cut or torn the cord, either in children or adults, and with proper care the accident should never occur. The lower end of the sac is removed if acquired, and if congenital, i. e., communicating with the tunica vaginalis, I always put in a purse-string suture which closes it over the testis.

I believe the substitution of an absorbable suture, e.g., chromicized kangaroo tendon, a great improvement over the buried silk sutures advocated by Bassini, or the silver wire so much used and lauded by other surgeons.

The method of operation that I have employed in most cases in children as well as in adults, is the Bassini method, with the modification of first placing one suture above the cord, in addition to those below, to prevent any widening of the new internal ring in an upward direction, and to substitute for the buried silk

sutures used by Bassini absorbable sutures, i. e., chromicized kangaroo tendon.

After the sac has been tied off well beyond the neck, at a point where it has begun to widen out into the general peritoneal cavity, the deep layer of sutures is placed as follows: With a small tape the cord is held up and the first suture is placed so that it just touches the lower border of the cord when the latter is brought vertically to the plane of the abdomen; three to four more through the internal oblique and Poupart's ligament will suffice to close the canal to the symphysis pubis. Then the suture above the cord (Fig. 3) is inserted. This is not a part of Bassini's technic, but I believe it is of decided aid in preventing a relapse, as it strengthens the only weak point in the operation. The incision in the aponeurosis is then closed from above downward by a small continuous suture of kangaroo tendon and the skin with catgut. No drainage is used, and the wound is dressed very carefully with sterile gauze, cotton, a firmly applied spica bandage, and finally a plaster-of-paris spica is applied to give perfect rest to the parts. The wound is dressed the seventh

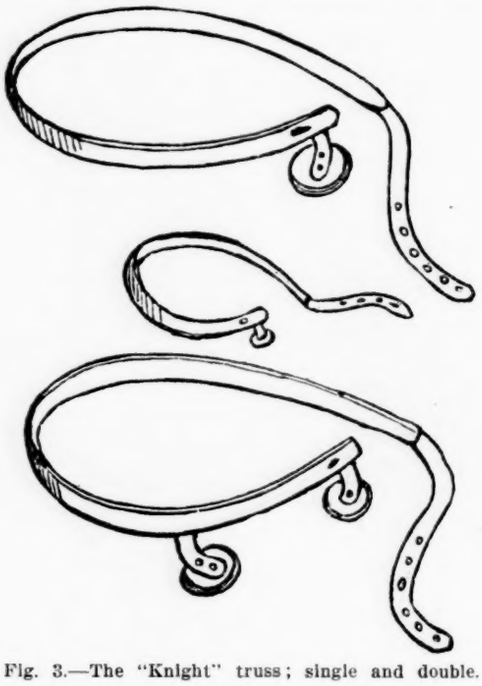


Fig. 3.—The "Knight" truss; single and double.

day, and the patients are kept in bed two weeks and allowed to go out in from two and one-half to three weeks, wearing a spica bandage until four weeks have elapsed, after which time no support is worn.

In a small series of cases, about 100 in number, extending back to 1892, Dr. Bull and myself have employed a method practically the same as Bassini's, without transplantation of the cord, the cord coming out at the lower angle of the wound, just above the symphysis pubis, the internal oblique being sutured to Poupart's ligament, the aponeurosis of the external oblique closed by continuous suture. In other words, all the steps are identical with those of Bassini's method, except the treatment of the cord.

This is the method that has recently been advocated by a number of surgeons as superior to Bassini's, and while they have perhaps operated on a larger number of cases by this method, these cases have not been observed for so long a period as our own. The method is undoubtedly an excellent one, but the results, as far as I have been able to determine from present data, are slightly inferior to those obtained with transplantation of the cord. There has been no atrophy of the testis following the transplantation of the cord, and the time required for the operation, with or without the transplanting of the cord, is practically the same, viz., from ten to fifteen minutes.

I have personally operated on 230 cases of inguinal hernia in the female, including both children and adults, by this method, namely, allowing the round ligament to come out at the lower angle of the wound instead of removing or transplanting it; suture of the internal oblique to Poupart's ligament, and closing the aponeurosis by a continuous layer suture of kangaroo tendon. These 230 cases have been very carefully traced, and, thus far, not a single relapse has been observed.

These results, while they go far to prove that the transplantation of the round ligament is neither necessary nor desirable, do not to the same extent prove the uselessness of the transplantation of the cord in the male, inasmuch as the cord is considerably larger than the round ligament, especially in the region of the symphysis pubis, or at the point where it emerges from the external ring. Removal of the veins of the cord is never necessary in children, and personally I believe it is very seldom indicated in adults.

COMPLICATIONS—HERNIA ASSOCIATED WITH UNDESCENDED TESTIS.

This condition is not infrequent in hernia in children, and there is by no means unanimity of opinion among surgeons as to its proper treatment. Some advise against operation altogether until the age of puberty; others advocate operation in all cases, even in infants.

Truss treatment of hernia, associated with undescended testis, is most unsatisfactory. The pad presses on the testis and causes pain, and may keep the testis within the external ring and retard its natural progress into the scrotum. The danger of producing malignant disease from the pressure of the truss on an undescended testis is far less than one would believe from the prominence given it in surgical text-books. Such a result has never been observed at the Hospital for Ruptured and Crippled during the last fourteen years, during which time upward of 60,000 cases have been treated.

McAdams Eccles of London, in his very elaborate study of the subject of undescended testis, shows that there is little foundation for this well-established belief. He states that in 48,000 males with hernia, 854 had undescended testis, and not a single case of sarcoma was observed.[1]

Bevan, in his admirable article[2] on the treatment of undescended testis, read before this Association a year ago, advises operation in most cases, even in young children.

I have operated on 38 cases of hernia associated with undescended testis, 27 of these being under the age of 14. At the Hospital for Ruptured and Crippled we were at first inclined not to operate under the age of 10 or 12, because observation showed that in many cases the testis descended into the scrotum of its own accord before the age of puberty. The danger of strangulation

1. Since this was written I have just observed for the first time a case of sarcoma of an undescended testis in a man of 35. The patient, however, never wore a truss. In my series of 22 cases of sarcoma of the testicle this is the only one in which the testis was undescended.

2. THE JOURNAL A. M. A., Sept. 19, 1903.

in these cases, even if a truss is not worn, is not great, as the testis acts as a barrier and prevents the rupture from coming down. Still, we have since found that even if the testis does descend into the scrotum, the hernia, as a rule, persists, and operation is finally necessary. For this reason we are now operating earlier than formerly.

METHOD OF OPERATION FOR HERNIA ASSOCIATED WITH UNDESCENDED TESTIS.

The Bassini method has been employed in most of my cases, but a little gain in the length of the cord is secured if it is not transplanted, and as the results are so nearly equal, I think it is well to omit transplantation in such cases and let the cord emerge at the lower angle of the wound. By freeing the cord very high up and by removing some of the veins, if necessary, the testis can, in most cases, be brought into the scrotum. In my early operations I tried several methods of fastening the testis into the scrotum, e. g., by wire frames, but soon abandoned such methods. If the testis is to remain permanently in the scrotum, it must be so thoroughly freed from the cord that it rests in the scrotum without tension, otherwise it will finally retract to the external ring or into the canal.

I believe that the method proposed by Bevan, of separating the veins deeply in the iliac fossa with the finger, is attended with some risk, and a hemorrhage in such a place would be most difficult to control. I do not believe the testicle should be sacrificed, for the reason that, although atrophied and possibly of little functional value, it nevertheless has an important influence on the development of the child. The hernia can certainly be cured without castration, as is shown by our own statistics. In no case has the hernia relapsed.

In the earlier cases in which less care was taken to thoroughly separate the fascia and free the cord high up, retraction of the testis to the region of the external ring was the rule rather than the exception. In the more recent cases it has been found possible, in a greater proportion of cases, to keep the testis in the scrotum.

STRANGULATED HERNIA IN CHILDREN.

This condition is comparatively rare in children, and is most frequent during the first two years of life. I have operated on 13 cases between the ages of 13 days and 14 years. In only 2 cases did strangulation occur between the ages of 2 and 14. This series of cases helps to settle an important and much-disputed point in the etiology of strangulation in children. The earlier statistics stated that the neck of the sac caused the strangulation in most cases. In every one of my own cases the strangulation was due to the tense fascia of the external ring, and not to the neck of the sac, which, in children, is always a thin and easily distensible membrane, incapable of producing strangulation. The error of the older statistics is probably due to the fact that operation in these cases consisted in merely relieving the strangulation by cutting all the tense tissues, including the sac at the same time. Hence the particular tissue causing the strangulation was not recognized. In our own cases the operation is precisely the same as that employed for the radical cure of non-strangulated cases, the skin incision being made beginning on a level with the anterior superior spine, and there has never been any difficulty about the reduction of the strangulated loop of bowel as soon as the tense fascia of the external ring has been severed.

In the 12 cases of strangulation there was one death, in a child six weeks old, the hernia having been strangulated for three days, and the child practically moribund at the time of operation.

RESULTS AS REGARDS PRIMARY WOUND HEALING.

Prior to 1897, when rubber gloves were not used, primary wound healing was observed in 96 per cent. of the cases; since the introduction of rubber gloves, it was noted in 99 per cent., which proves beyond any question that it is possible to obtain a sterile absorbable suture. Furthermore, the fact that the final results in 775 Bassini operations in children showed but three relapses, proves quite as conclusively that the tendon sutures remain unabsorbed sufficiently long to effect a permanent cure. The disadvantages of using buried non-absorbable sutures in the hernial canal I have pointed out so frequently that I will merely allude to them here.

In a certain number of cases they lead to the formation of a sinus, which usually persists for weeks or months, until the offending suture is removed, but the worst feature is the weakening of the canal by the suppuration, leading in most cases to relapse. A large number of such cases have been observed at the Hospital for Ruptured and Crippled, showing that these objections are not merely theoretical, but very practical.

FINAL RESULTS OF OPERATIVE TREATMENT.

Between August, 1891, and July, 1904, I have performed 825 operations for the radical cure of hernia in children under the age of 14 years with one death, due to ether pneumonia. Four operations were for umbilical hernia; four for ventral; two for epigastric; 25 for femoral; thus making 815 cases for the radical cure of inguinal and femoral hernia in children; or 790 operations for inguinal hernia. In 15 of these the cord was not transplanted, leaving 775 cases in which Bassini's method, with the substitution of chromicized kangaroo tendon for the buried sutures, was performed. In this series of 775 operations but 3 relapses were observed; in the 15 in which the cord was not transplanted, 5 relapses were noted.

In a total of 1,330 operations for the radical cure of inguinal and femoral hernia, including adults, only two deaths occurred, and 12 relapses.

In the 25 cases of femoral hernia in children, there has not been a single relapse. Sixteen were examined and found perfectly sound from 3 to 8 years after operation; 5 from 1 to 2 years; four cases were not traced beyond six months.

The utmost effort has been made to trace these cases to final results, and comparatively few have been lost sight of. In my paper read before the American Surgical Association[3] a year ago, the end results of 1,003 cases were given in more detail. Six hundred and fifty of these cases (including adults) were examined and found perfectly sound from 1 to 11 years after operation.

The method of operation for femoral hernia in children has been in every case the "purse-string suture," with kangaroo tendon.

The technic, as I have performed the operation, in brief is, first, to thoroughly free the sac well beyond the neck; high ligation of the sac and closure of the canal by means of a purse-string suture of chromicized kangaroo tendon. The suture is introduced through Poupart's ligament or the inner portion of the roof of the

3. Transactions of the Am. Surg. Association, 1903; Annals of Surgery, June, 1903.

canal, or crural arch, from where it passes downward into the pectineal muscle or floor of the canal, outward through the fascia lata overlying the femoral vein, and upward through Poupart's ligament or roof of the canal, emerging about three-fourths of an inch from the point of introduction. On tying the suture, the floor of the canal is brought into apposition with the roof, and the femoral opening is completely obliterated. The superficial fascia may then be closed with catgut or fine tendon, and the skin either with catgut or silk.

This method I believe superior to Bassini's operation for femoral hernia, and of 82 operations for femoral hernia done within the last 14 years, 66 were performed by this method, without a single relapse; in 16 cases operated on by Bassini's method, there was one relapse.

RELAPSES AFTER BASSINI'S OPERATION FOR INGUINAL HERNIA IN CHILDREN.

1. J. K., male, aged 6½. Bassini's operation, substituting kangaroo tendon for silk in the buried sutures, done in October, 1894. Primary wound healing. Slight relapse one year later.

2. J. W., male, aged 9. Operated on by Bassini's method in August, 1894. Slight relapse two years later. Truss applied for a time; then left off. Examination in 1903, nine years later, showed only a slight impulse on coughing.

3. B. B., aged 6. Right inguinal hernia. Operated on June 12, 1903. Wound healed by primary union. On July 15 the patient had a severe attack of whooping cough, during which time he applied no support to the recently healed wound of the inguinal canal. A recurrence was noticed on August 8.

RELAPSES IN CASES IN WHICH THE CORD WAS NOT TRANSPLANTED

1. H. O., aged 8. Operation Dec. 12, 1901. Cord not transplanted. Relapse three months after operation.

2. C. R., aged 13. Very large right inguinal hernia. Operation Dec. 28, 1891. Cord not transplanted. Silk used for the deep buried sutures. Wound suppurated and most of the deep sutures came out. Relapse within three months after operation.

3. B. S., aged 12. Right inguinal hernia. Operation January, 1892. Cord not transplanted. Silk used for the buried sutures. The wound healed by primary union, but a few weeks later a sinus formed and a few silk sutures were extruded. Relapse followed a few months later. Patient was re-operated on by Bassini's method, and was entirely well ten years after.

4. F. H., aged 10. Operation February, 1892. Cord not transplanted. Chromicized catgut for buried sutures. Patient remained well for three years, when a slight relapse occurred.

5. E. B., aged 6. Operation February, 1901. Cord not transplanted. Sliding cecal hernia. Relapse three months after operation.

REMARKS.

A closer study of these relapses is of some interest. In four of the five relapses following operation without transplantation of the cord, operation was performed in 1891-2, or more than twelve years ago. In two of these cases silk was used for the buried sutures, with subsequent sinus formation which weakened the canal and was, undoubtedly, an important factor in causing the relapse. In the fifth case which relapsed after operation in 1901, we had to deal with a sliding cecal hernia, a form of rupture the radical cure of which is acknowledged to be almost impossible to obtain with any method of operation. Five relapses in a series of twelve cases in which the cord was not transplanted is certainly a high percentage.

Coming to the cases operated on by Bassini's method with the substitution of kangaroo tendon for silk, in the buried sutures, we have 775 cases with three relapses. Two of these relapses were very slight; one of them showing only a moderate impulse on coughing nine years after operation. The third was due to a severe attack of whooping cough coming on four weeks after operation.

This series of cases, I think, conclusively proves that the risk of operation for the radical cure of hernia in children is exceedingly small and the chance of securing a permanent cure almost certain.

DISCUSSION.

DR. DAVID E. ENGLISH, Millburn, N. J., stated that some years ago he emphasized the fact that in the treatment of this form of hernia a proper kind of pad must be used and that anything in the shape of a button that was pointed or round on the surface next to the skin would rather defeat the purpose for which it was placed there. Since reading that paper he has used a silver quarter, properly padded, and his results have been very good.

DR. ARTHUR L. FISK, New York City, agreed with Dr. Coley that it is not wise to operate on such young infants unless the conditions demand it.

DR. ROSA ENGELMANN, Chicago, asked Dr. Coley how he prevents excoriation of the skin in connection with his applications for the treatment of ventral hernia. Recently Dr. Engelmann has been using the oxid of zinc plaster, and still has been unable to prevent excoriation of the skin.

DR. W. B. COLEY, in reply to questions, said that the character of the pad in ventral and umbilical herniæ is of considerable importance. The side in contact with the skin should be slightly convex instead of concave, and should be considerably larger than the hernial ring, since otherwise it will sink into the ring. A certain amount of excoriation will be produced by any kind of plaster if it is allowed to remain on for any length of time, but zinc oxid has been found to cause far less trouble than the ordinary plaster. It should always be changed within a week or ten days, and strict cleanliness should be observed. Dr. Coley agreed with Dr. Fisk that it is not wise to operate on very young infants, although there is a great tendency, particularly in France and Germany, to operate on infants even a few months old. The fact that so many of these cases can be cured by the use of a truss and, furthermore, that the danger of strangulation in infants is not great, are ample reasons for deferring operation.

THE SCHOTT METHOD OF TREATING DISEASES OF THE HEART AND BLOOD VESSELS.*

JAMES M. ANDERS, M.D., LL.D.
PHILADELPHIA.

It may appear rather late in the day either to present the claims of the Schott methods of treating chronic cardio-vascular diseases or to discuss the details connected with their application. It should ever be a feature of our therapeutic creed, however, to give close attention to physiologic means and to recognize their superiority over drugs as curative agencies. No one who views the immense concourse of persons pouring into Bad Nauheim from every part of the globe and notes the conditions presented by a small fragment even, as I have done, can fail to be impressed with the fact that confusion obviously reigns in the minds of a large proportion of the medical profession as to what constitutes a suitable case for this recognized mode of treatment. The same vagueness and indefiniteness of professional thought and action holds true at home, perhaps in greater degree than abroad, more especially in England, Germany and Russia—countries in which

* Read at a meeting of the Philadelphia County Medical Society, 1904.

much attention has been paid to the subject. These facts furnish the *raison d'être* for attempting to extend a knowledge of the subject among the members of the profession of America, on whom it unquestionably has strong claims. On the other hand, the Schott method of treating chronic cardiac diseases has not been as universally appreciated as it deserves. A transference of the point of view to an actual observance of the workings of the *kur* furnishes a clearer vision and serves to emphasize both its efficacy and the vastness of its sphere of usefulness.

Of the numerous health resorts that have risen to fame in recent times, unquestionably Bad Nauheim heads the list, but its claims to public favor are not solely ascribable to the virtues of its healing waters as some contend, great as is the value of this expedient, but, as will be shown hereafter, the "resistance exercises," which enter into the method of treatment herein described, form an element of almost equal therapeutic importance. Considerable attention is also bestowed on the patients' dietary and hours for sleep and recumbency. Again, Nauheim has certain outside recommendations, and commands an attractive and restful environment. Beautifully embowered in a pretty park, lying near the foot of the Tannus mountain, are the commodious, cheerful and modern bath-houses (*bäder*), while the springs, or underground streams, that supply them "without hurry and without rest," gracefully yield their healing waters from the great repositories of Nature. Around this fairly extensive and pretty park cluster numerous stately villas, hotels, and, in the loftiest part stands prominently the handsome "kurhaus," on the terrace of which there are daily concerts by an orchestra, and theatrical performances in the evening, the amusements offered being in keeping with the nature of a serious health resort.

One need not renounce modern comfort at Bad Nauheim. I gained the impression, however, that the healthy public might find this resort dull, since conversation constantly involves excursions into the subject of chronic diseases of the heart and their treatment by the special method under consideration. This resort possesses certain minor climatic advantages; it is situated on the edge of a plateau (the Wetterau) at an elevation of 450 feet above the level of the sea, and the nights are always cool, owing to the nearness of the Johannisburg and the Woodland. There are also long, wide avenues with their cooling shade. Again, the sanitary arrangements are quite good.

In attempting to present the claims of the Schott methods of treatment of chronic cardiac diseases, as conducted at Nauheim, I am not unmindful of the existence of the excellent monograph of Bezly Thorne[1] and the papers published on the subject by Camac,[2] Tyson,[3] Baldwin[4] and others. These writers have given a creditable estimate of its advantages and have fully presented the details of its application, but they have scarcely formulated the whole truth in the premises. Moreover, the skeptically minded is among us; he who ascribes the *rationale* of the phenomenal results achieved to the good effects of rest and a peculiarly attractive environment. Granted that a salubrious environment shares in the production of the beneficial effects, the principal and most influential factors to the attentive and practiced observer are unquestionably the systematic and methodic use of the saline baths and the "resistance movements."

Time and space forbid a full descriptive account of the baths and their constituents in this place. The springs are known both by names and numbers, but the former alone will best serve the purposes of this article.

The bath waters contain from 2 to 3 per cent. of sodium chlorid, from 2 to 3 per 1,000 of calcium chlorid, various forms of iron, and above all, a large amount of carbonic dioxid (Schott).[5] A course of baths embraces the use of waters of various strengths, ranging from the milder to the more potent with the progress of the cure, and the duration of the period of immersion is also variable. At the beginning, the waters of the so-called thermal baths are employed; they are freed to a certain extent from their natural gas. These are succeeded by the thermal-sprudel baths, then pure sprudel and, finally, in a certain proportion of the cases, the so-called strom-sprudel. The baths intermediary between the thermal and effervescing (sprudel) are supplied from storage tanks. To render the baths more stimulating, so-called *"mutterlauge,"* which is the refuse of the salt manufactory in the neighborhood, is added in carefully increasing quantity in certain cases. The flowing sprudel (strom-sprudel) baths, which possess the greatest balneologic strength known, are most efficacious when judiciously and wisely employed. Here the waters of the principal springs forcibly enter, pass through and leave the bathtub during the period of immersion; it is the "bath of champagne."

It can be readily shown that the Nauheim waters offer more than simple saline baths, seeing that they contain carbon dioxid in solution and are also strongly ferruginous. Furthermore, the amount of carbon dioxid is far greater than that contained in any other bath on the continent. The physiologic effects of the mineral baths are at present writing fairly well understood, although at an earlier period of time they were used empirically as a remedy in rheumatism and later in chronic cardiac diseases. The baths exert a beneficial influence in various directions in cardiac insufficiency and prominent among the salient results are a more vigorous systole with diminution in the size of the dilated heart and a reduction of the pulse rate. The diminution in the size of the heart is readily established both by percussion and the use of the *x*-rays.[6]

Of equal importance is the influence exerted on the blood paths, by means of which there is accomplished an arteriodilatation and a transfer of the abnormally large increment of venous blood to the arterial side of the circulation. The blood pressure, as shown by Prof. T. Schott,[7] is generally raised, but when it is too low at the start, this effect is not observed.

It is especially noteworthy that in consequence of a freer coronary circulation the impaired nutrition of the myocardium is correspondingly benefited. The labor of the overburdened heart is greatly diminished and its recuperation to a like extent assisted. Indeed, as the result of personal observation, I am enabled to affirm that all the usual evidences of an impaired circulation presented by the different organs (lungs, liver, stomach, kidneys), as well as the anasarca, disappear as the heart's capacity for physiologic work augments under the influence of balneologic therapy.

1. The Schott Methods of the Treatment of Chronic Diseases of the Heart, fourth edition, 1902.
2. THE JOURNAL, Aug. 28, 1897.
3. Univ. Med. Mag., July, 1897.
4. Med. Record, Feb. 13, 1904.
5. Prof. T. Schott: Med. Record, March 26, 1898.
6. Med. Record, June 29, 1901.
7. Among the most valuable early papers on the effects of the baths on the heart was that of A. Schott, published in 1880.

This effect on the circulatory system is not due to a direct action of the baths, but an indirect one through irritation of the cutaneous sensory nerve filaments, the stimulation being conveyed to the vasomotor, cardiac and other nerve centers, and producing an effect on the organic functions and general nutritive processes.

Beneke directed forcible attention to the striking improvement in comparison and even complete recuperation of enfeebled heart action in old valvular lesions, in gout and rheumatism, complicated with heart disease, as the result of judicious employment of the Nauheim springs. In 1882, the Brothers Schott began an exhaustive series of experiments on the effects of immersion in saline solutions on the blood pressure of lower animals. These experiments, together with those of Beneke and Jacob of Cudowa, place the fact beyond controversy that saline baths exert a marked influence on the blood pressure. Further, the "resistance movements," which are employed concurrently with the baths, were first introduced and elaborated by the Brothers Schott.

In this connection too much stress can not be placed on the rôle played by the nervous system in bringing about the curative effects of this special method of treatment. Thorne wisely argues that a certain amount of stored energy (available for response to the various stimuli which may be brought to bear on it) is necessary to a successful application of the therapeutic baths and "resistance exercises." It therefore requires an orderly method and sound judgment to decide whether or not the Schott methods are applicable to the given case, more especially if the patient is suffering from an advanced valvular lesion or myocardial degeneration.

The object of the "resistance exercises," which constitute the second essential portion of the Schott method, is to throw into activity different groups of muscles, more especially those of the extremities, "in orderly succession without inducing fatigue." The movements exert a marked influence on the circulation, both lesser and systemic. Indeed, they do not belong to the domain of "gymnastics," since they exercise their principal therapeutic effect over the cardiovascular system rather than over the muscular system. There has been considerable controversy over the *rationale* of the "resistance movements." Unquestionably they bring muscles that are for the greater part inactive under usual conditions, into normal functional activity; they stimulate the peripheral motor nerves, while the baths, it will be recollected, act on the sensory nerve filaments, and finally, they exert a tonic effect on the myocardium. The movements also tend to drive the venous blood to the right side of the heart, by compression of the veins (Broadbent).

This element of the treatment must be carried out by a specially trained operator, who carefully observes certain details in connection with its application. These rules are well summarized by Thorne as follows:

1. Each movement is to be performed slowly and evenly, that is, at a uniform rate. 2. No movement is to be repeated twice in succession in the same limb or group of muscles. 3. Each single or combined movement is to be followed by an interval of rest. 4. The movements are not to be allowed to accelerate the patient's breathing, and the operator must watch the face for the slightest indications of (*a*) dilation of the alæ nasi, (*b*) drawing of the corners of the mouth, (*c*) duskiness or pallor of the cheeks and lips, (*d*) yawning, (*e*) sweating, and (*f*) palpitation. 5. The appearance of either of the above signs of distress should be the signal for immediately interrupting the movement in process of execution, and for either supporting the limb which is being moved, or allowing it to subside into a state of rest. 6. The patient must be directed to breathe regularly and uninterruptedly, and should he find any difficulty in doing so, he must be instructed to continue counting, in a whisper, during the progress of each movement. 7. No limb or portion of the body of the patient is to be so constricted as to compress the vessels and check the flow of blood.

Every movement is designed to achieve a practical result on physiologic principles. The patient's condition and endurance must be the criterion as regards the number and character of the movements to be employed. In all cases, therefore, the physician must carefully instruct the operator; not only so, but he should supervise the administration of the "resistance movements" until convinced that they are being properly executed. It is not less important for the medical attendant to note the effects of the movements, for while, as a rule, the circulatory organs, and to a lesser extent the muscles and respiration, are strengthened and invigorated, yet an imperative need for a modification of the method may be presented. The movements employed are accurately and individually described by Bezly Thorne, and the reader may be referred to his excellent work for further details.

Much in this position might be said to further elucidate the physiologic conditions involved in the more or less co-ordinate action of the two main elements of the Schott method, to-wit: saline baths and "resistance movements," but this course would require more lines than these to which I am limited. After all, it is through its marvelous effects that it makes the strongest appeal to the judgment of an unprejudiced observer. It is well known how unsatisfactorily and incompletely disturbances of compensation in the course of chronic valvular lesions yield to medicinal measures, rest and regulation of the diet at home, both in private and hospital practice; also that, almost with certainty, progressive myocardial degeneration advances, leading sooner or later to a fatal degree of dilatation under similar treatment.

On the other hand, I have recently witnessed the application of the method under consideration in chronic valvulitis and various other conditions at Nauheim, and convincing clinical evidence was afforded of its remarkably beneficial and curative effects in a variety of cardiovascular degenerations. Speaking generally, it seemed to me that the improvement, in the vascular changes, as shown by the increased lumen of the vessels and volume of the pulse, was quite as striking as that produced on the myocardial changes. And the yielding of cases of angina pectoris within a comparatively brief period of time would lend support to the assumption that many examples of this grave disorder are most probably dependent on abnormal vasomotor influence.

There was, however, brought to my attention clear evidence of the beneficial effects of the method in vascular degenerations of well-marked degree. The great advantages of the baths and exercises in these cases, as well as in myocardial changes, serve to emphasize their potency in stimulating or favorably influencing bodily metabolism. This statement granted, and it becomes needless to point out that the methods are applicable to a wide range of varying conditions other than cardiac.

I shall now choose a few illustrations from among a large number of different forms of cardiac and non-

cardiac conditions which, by the courtesy of Prof. T. Schott, I had an opportunity of observing during the bathing course.

CASE 1.—Mr. A. C., aged 28 years, married; occupation, auctioneer; height, 5 feet 11 inches; weight, 151 pounds (in clothes); no heart lesions in any member of his family; neither gout nor rheumatism furnished by the family history.

History.—Patient had had childish diseases; at 12 he suffered from rheumatic fever of a severe type, but no heart complications arose, so far as the patient's knowledge extends; he had been considered a good risk by life insurance companies up to 4 years ago. At 22 he contracted syphilis, for which he was vigorously treated, and neither secondary nor tertiary manifestations put in an appearance. Within the last 5 years he has had two mild attacks of influenza. The social history does not furnish many points, although the patient formerly smoked an average of from 8 to 10 cigarettes daily, and used from 3 to 4 drinks of whisky and soda in the same period.

Present Illness.—The present illness began 3 years ago while playing hard at polo, when he developed pain in the region of the heart, to relieve which a hypodermic injection of morphin was employed. Subsequently, he continued well for 18 months, with the exception of dyspnea on muscular exercise. One year ago he began to suffer from vertigo at intervals; his physician said the heart was enlarged on the left side. Artificial Nauheim baths were employed at the suggestion of Dr. Thorne. On July 4 the patient went to Nauheim; this was just 3 weeks before he fell under my personal observation. On arrival, vertigo recurred several times daily, dyspnea was marked and sharp pains through the heart were complained of; the bodily surface was everywhere cold to the touch. After 3 weeks' treatment, or at the time I first examined the patient, the vertigo had disappeared and dyspnea greatly lessened. He could now walk a distance of several squares, whereas he was unable to walk unaided at the time of his arrival at the springs.

Physical Signs.—August 1: Heart much dilated, to the left it extends to anterior axillary line, to the right to a point near the right edge of the sternum; the impulse is feeble and a slight presystolic-systolic thrill is detectable at the apex. The area of percussion dullness corresponds with the impulse, and on auscultation a faint presystolic-systolic murmur is audible at the apex. Some distance above, and near the left edge of the sternum, a pure diastolic murmur is heard; it is soft and blowing.

August 17: A second physical examination shows the border line of cardiac dullness on the left to correspond to vertical nipple line, and the right boundary falls ¼ inch to the left of the midsternal line. The murmur at the apex is not audible, although the second pulmonic sound is accentuated; the diastolic murmur is still heard. The heart sounds in general are much stronger than at the previous examination. The patient now indulges in long walks without noticeable dyspnea and denies any discomfort.

The case reported above was regarded primarily as one of acute dilatation; and although complete relief has been accomplished, the patient is urged by his attending physician, Prof. T. Schott, to return one year hence, meanwhile being allowed to resume his usual vocation.

CASE 2.—W. A. M., aged 54 years; occupation, physician (lieutenant-colonel in the Indian medical service for 10 years); nothing hereditary in the family.

History.—Patient had had childish diseases, and syphilis at 20, attended with slight secondary manifestations only. Twelve years ago he had an attack of influenza and has not been in his usual health since. The patient had been a hard polo player for years, and also an excessive user of tobacco prior to the discovery of the heart lesions.

Present Illness.—In 1903 he had cold extremities and dyspnea on muscular exercise; Dr. Sansom diagnosticated mitral regurgitation with marked dilatation and instability of action.

Sept. 1, 1903: Patient commenced a course of treatment at Nauheim lasting 5 weeks; his condition was remarkably improved thereby, although sleepless and nervous for a time.

July 1, 1904: Symptoms returned to a moderate extent, and at once the patient proceeded to Nauheim. His condition was much less pronounced than in the previous year, and after a bathing course, lasting one month, I was privileged to examine him. There was present very slight dilatation of both ventricles; the increase in the transverse diameter of the heart being about ½ inch above the normal. The mitral systolic murmur was scarcely audible and the systole apparently normal; at intervals there was slight palpitation; it was not so apt to be induced by exercise as by nervous excitement, as on awakening or playing at a game of whist. The patient now indulged in long walks, even over mountain sides; this he could not do before the Schott method of treatment had been adopted.

It was supposed by his physician, Dr. Sansom, that the severe exercise and excessive use of tobacco had been the cause of the marked disturbance of compensation and induced secondary dilatation. It would appear from this and the previous case that the Schott methods are especially serviceable in the advanced stages of cases of rapidly developed dilatation. In confirmation of this position, I may state that Professor Schott related numerous cases of a similar character.

CASE 3.—R. H., aged 38 years, single; occupation, practicing physician in New York City; height, 5 feet 7 inches; weight, 172 pounds (stripped). The family history is negative, except that his mother, who is living, has been afflicted with rheumatoid arthritis for 10 years, but only in the hands.

Previous History.—Absence of all childish diseases. While a medical student he had intussusception, which cured itself spontaneously. In 1896 he had typhoid fever, lasting about 6 weeks; this attack was of medium severity, but recovery quite slow. Two years later (meanwhile working), he noticed severe attacks of palpitation and dyspnea, and was easily fatigued, compelling him to curtail his work. During and after the attack of typhoid, he had attacks of hemicrania, now on one, then on the other side, and nausea always and vomiting sometimes occurred during the attacks of migraine. For these headaches he used migrainin, phenacetin and other coal-tar products, but soon gave them up, having been told that his heart action was weak. For two years he has used strychnin (gr. 1/30 t. i. d.) irregularly, and he has also tried potassium iodid, which, however, disagreed with him, and hence was discontinued. The patient had been a moderate smoker and had used beer and wine, but never immoderately. He paid little or no attention to diet and systemic exercise.

Present Illness.—The present illness began 4 years ago, the symptoms being dyspnea on exertion, cardiac palpitation and thoracic oppression. Two years ago he had a serious collapse in a patient's house, probably a syncopal attack due to myocardial weakness. He took a few doses of the fluid extract of digitalis. At the end of 36 hours he had recuperated; he then avoided overexertion and excitement, but in July, 1903, had a second attack, though less severe, and was unable to work for an entire day. The third and last seizure occurred on June 24, 1904. This case began with severe vertigo, followed by complete unconsciousness. The local symptoms (palpitation, dyspnea and oppression) have become more severe for 2 years. Since the last attack of syncope he has been troubled with flatulence, small appetite and increasing weakness. During the past year he has also had rheumatic pains in joints and muscles at intervals, but they never lasted more than 24 hours.

Physical Examination.—August 5: Impulse diffuse, wavy and exceedingly feeble, both on inspection and palpation; no thrill detectable on palpation; percussion showed the area of cardiac dullness to be greatly increased in the trans-

verse diameter, to the left to anterior axillary line, to the right to a point ½ inch beyond the right sternal edge. On auscultation, a systolic apical murmur was heard, and the second pulmonary sound was somewhat accentuated. He began a bathing course and 2 days later the "resistance exercises" were also introduced.

August 11: The left border of the heart is now at vertical nipple line, the right at midsternum.

August 27: Impulse much stronger and apex about in normal position; left boundary line of dullness is at left vertical nipple line, while the right has moved to a point ½ inch to the left of the midsternal line; heart sounds only moderately strong, but no murmurs detectable; neither is there any appreciable arrhythmia present.

Before inaugurating treatment in this case, Prof. T. Schott gave me a remarkable demonstration of the effects of the "resistance exercises" on the dimensions of the heart. The patient was allowed to rest for forty-five minutes, when mild "resistance movements" were instituted; at the end of seven minutes the pulse had fallen from 84 to 72 a minute, while both the volume and tension had increased. After eighteen minutes of the exercises, I noted their effect on the dimensions of the heart. It will be conceded that the movements properly conducted cause a distinctly marked and decided shrinkage in the size of the heart chambers. Obviously, this reduction in size was not maintained, although persistence in the use of the exercises and baths brought about the result stated above. (Fig. 1.)

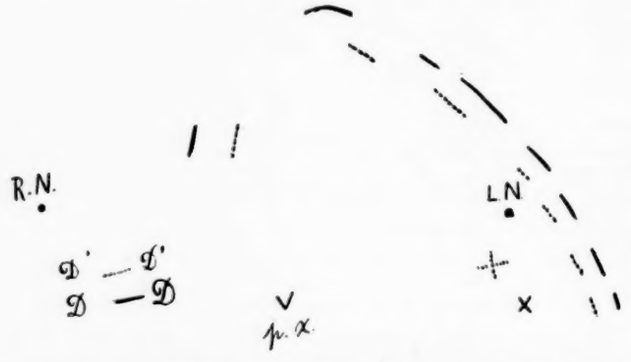


Fig. 1.—The straight lines indicate the outline of the heart; D—D, diaphragm, and X the apex beat before the exercises with resistance. The dotted line indicates the size of the heart, D'—D', the diaphragm, and the dotted cross the apex beat after 18-minute exercises with resistance. R. N., right nipple; L. N., left nipple.

CASE 4.—A. D., aged 35, male, Russian by birth; merchant, with rather arduous duties.

History.—Childish diseases: Acute articular rheumatism at 13, complicated with endocarditis. The patient was taken to Nauheim. Professor Schott found the heart enlarged 3 cm. to the right and 2½ cm. to the left; auscultation revealed a mitral regurgitant murmur. The patient took a bathing course for 7 years in succession and was considered to be cured. Fourteen years later, he injudiciously bathed in a stream of very cold water, whereon he developed an acute articular rheumatism, from which he partially recovered as the result of treatment at home. Shortly after, or one year ago, he was again brought to Nauheim, with traces of subacute rheumatism. A single bathing course resulted in apparent cure.

Examination.—He returned this season without rheumatism, and at the end of his course of treatment I was requested to make a physical examination. The heart was found somewhat hypertrophied; the left boundary line of dullness corresponded to vertical nipple line and the right to vertical midsternal line; the impulse was vigorous and regular, and on auscultation a faint systolic murmur was detectable at the apex. The patient feels himself to be in excellent condition and indulges freely in physical exercise without fatigue. The general appearance also indicates good health. This excellent result was accomplished without the use of any medicines.

It is not claimed by the most ardent advocates of the virtues of this method that chronic valvulitis is, as a rule, curable, although a few well-authenticated cases have been recorded. On the other hand, as a means of bringing about compensation, either in simple dilatation or in that form associated with chronic valvulitis (e. g., Case 4), it possesses advantages which meet the requirements more fully and satisfactorily by far than any other known form of treatment.

It is a point of common knowledge that many patients in whom digitalis has lost its therapeutic influence come to Nauheim, and after a few baths this drug takes hold. The following is a case in point:

CASE 5.—Mrs. A. H., native of Russia, aged 56; height, 5 feet 2 inches; weight, 180 pounds; father was corpulent and died suddenly at 58 years, cause unknown; all other members of the family also stout.

History.—Patient had had childish diseases, and at 36 had an attack of acute articular rheumatism following childbirth and lasting about 3 months; there was a chest complication, the precise nature of which, however, is unknown. The patient has 6 children, all in good health. Menopause occurred 5 years ago.

Present Illness.—The present illness began at that time with swelling of ankles and distress of breathing on muscular exercise. The attending physician found a heart lesion and sent the patient to Dr. Schott, who discovered a greatly dilated heart with associated cyanosis, urgent dyspnea and marked edema of the legs. The diagnosis of aortic stenosis and mitral regurgitation with secondary relative tricuspid regurgitation was made. The patient had taken digitalis, at first with marked benefit, but later without beneficial effect prior to coming to Nauheim. After a course of baths, a smaller dose than had previously been employed seemed to exercise a happy influence. The patient has been returning annually to Nauheim and each new season has found her improved. Patient is now comfortable, even after exercise, and has not required any digitalis or other cardiac stimulant during the past year.

CASE 6.—General W., Englishman, aged 71, with a negative family history, although father died at 67 years, "an old man." On the whole, the family is not long-lived.

History.—Patient spent 7 years in Indian service; has never been rheumatic, but gouty at intervals, and has just recovered from an attack of lumbago. He has never paid any attention to diet, but has exercised considerably; he has been a moderate indulger in intoxicants and tobacco.

Present Illness.—He first came to Nauheim 6 years ago, and has returned each year since then; his condition at first was marked weakness, with great distress of breathing on exertion; his legs felt like lead and he could only walk a few steps when his head would reel and his sight fail. The heart action was excessively weak, with an occasional intermittence, but no murmurs were present. Each bathing course of 6 weeks brought about a decided gain from year to year, so that at present he can walk briskly for long distances. Occasionally, at night, the patient experiences a "thump," followed by a brief stop in the heart action.

Aug. 18, 1904, or at the end of the last course of treatment, I was permitted to make a physical examination. The heart was found to be of normal outline; the impulse was rather feeble, but regular, and no murmurs could be detected; the first sound was also clear with, however, some accentuation of the second aortic. The peripheral vessels are but slightly sclerosed to the touch.

The combined bath treatment and "resistant exercises" has rejuvenated this man beyond question. Without stopping to detail other similar cases, it may be stated that in no class of affections did the Schott method appear to exert more salutary effects than in

moderate degrees of arteriosclerosis with embarrassment of the heart action. I observed several additional instances in which from a course of baths and exercises marked relief was afforded. The explanation is not far to seek; the lumen of the arteries, both larger and smaller, is widened, and thus the heart relieved and given an opportunity to rehabilitate itself. Whether the baths and exercises affect principally the vasomotor nervous apparatus or increase the arteriocapillary capacity in an indirect manner by favorably influencing metabolism, I can not venture to state at present writing.

Closely connected with this class of cases are those in which the atheromatous changes involve especially the coronaries and lead to the development of angina pectoris. It was my good fortune to be privileged to examine several cases of the sort and to note the results of treatment. The special effect of the Schott method was most gratifying and scarcely less than magical in many cases at least. I regret that the limits of this article will permit of my giving but a few illustrations.

CASE 7.—M. M. S., sent from San Francisco; male, aged 48; German; occupation, cigar manufacturer and wine agent; height, 5 feet 9 inches; weight, 160 pounds. Father died of chronic Bright's disease, and mother of pneumonia; all brothers and sisters, 8 in number, living and in good health.

History.—Patient had had childish diseases, after which he remained well until the age of 44, when he developed subacute articular rheumatism, lasting a couple of months; he had a recurrence the following winter, and he was cured by Kreutznoch baths. In previous years he indulged freely in beer and wine, and also smoked 10 cigars daily, on the average.

Present Illness.—Present illness began suddenly 2 years ago with numbness of arms, quickly followed by severe pain behind the sternum, which radiated to the neck and arms, especially the left; associated symptoms were cold sweats, inability to breathe, syncope and dizziness. The attacks lasted from 1 to 3 minutes and recurred from 2 to 3 times a week while engaged at work, but not so often when at rest. After two unusually severe attacks, he came to Bad Nauheim, June 14, 1904. He took 30 baths prior to July 20 (9 thermal, 10 thermal-sprudel, and 11 sprudel). From the commencement of the bathing course he experienced no pain, but felt somewhat weak and nervous for a couple of weeks, after which he felt quite strong. On July 20 he went to an "after *kur*," and remained 18 days; he returned to Nauheim feeling well, but was advised to take a brief bathing course.

August 23: He declares himself perfectly well, experiences no discomfort on walking briskly, whereas when he arrived at Nauheim walking invariably induced dyspnea and sometimes pain. Physical signs show slight dilatation in the transverse diameter, and the presence of an apical systolic murmur with accentuation of secondary pulmonary sound; there is no arrhythmia.

CASE 8.—A. A. P., Russian, aged 60; occupation, official judge; with negative family history.

History.—After child's diseases he continued well until 10 years ago, when he had influenza. He has never used either alcoholic intoxicants or tobacco; neither has he paid any special attention to diet or exercise.

Present Illness.—The present illness dates from one year ago and began with pain in the left parasternal region and radiated to arms. The primary attack was severe and lasted but a few minutes. Subsequently he experienced dyspnea on exertion, and during the following year he had three additional paroxysms of great severity. June 1, 1904, he came to Nauheim in an extremely weak condition, with hardened arteries, and the slightest attempt at exercise induced pain. He began treatment.

Aug. 23, 1904, a physical examination which I was permitted by Professor Schott to make, showed a moderate degree of right ventricle hypertrophy, while the left was practically normal; no murmurs detectable on auscultation; radials were palpable and the pulse small and irregular. He still has pain in the region of the heart on active exercise, but not true angina, and the arrhythmia, which had been present from the beginning of his illness, was now absent. The condition is greatly improved; treatment to be continued at intervals.

CASE 9.—A. K., American, aged 65, bishop; height 5 feet 8½ inches; weight, 185 pounds. Father died at 72 of stenosis of the esophagus, and mother at 55 of an aneurism; otherwise family history is negative.

History.—Escaped most childish diseases, although in delicate health all his life; at 23 he developed congestion of the lungs; for 25 years he has felt rheumatic pains in his knees and elbows; he is also troubled with nervous indigestion and attacks of troublesome diarrhea during the same period. Eight years ago he had an attack of acute rheumatism, affecting principally the left shoulder, with considerable fever, lasting one week; a heart complication developed, from which he apparently recovered.

Present Illness.—He continued well until 4 years ago, when he discovered by accident a heart lesion with dilatation. Prior to that time he had occasional vertigo, palpitation and appreciable irregularity of the heart action. Patient never smoked nor used intoxicants; had lived simply and eaten plainly, and had taken much walking exercise. For 5 years previous to being treated after the Schott method at Nauheim, he had suffered from angina pectoris of moderate intensity; the attacks especially excited from muscular exercise, and, to a lesser extent, also mental excitants. He has visited Professor Schott at Nauheim each summer for 6 years. From the first bathing course, combined with muscular exercises, the condition improved, and during the past two years he has not experienced any pain whatsoever. Patient finds that at or about the close of each winter season's arduous work he suffers from general weakness, slight dyspnea on walking, and for this reason still continues his annual visits to Nauheim.

Aug. 23, 1904, I made a physical examination and found the heart somewhat enlarged, the left boundary line of cardiac dullness corresponding with the vertical nipple line and the right falling through midsternum. Two murmurs are audible, one diastolic at the base, the other systolic at apex. The diagnosis had been aortic regurgitation with secondary relative mitral incompetency. The action of the heart is regular and pulse moderately strong. During the entire course of treatment, no medicinal measures were employed, while the heart grew steadily smaller in size and the general health better.

Granting that the baths and exercises do more good in their own attractive and restful environment than elsewhere, for example, at home, it will be conceded that such results as recorded above can not be attributed solely to this factor.

In connection with Case 3, reported above, attention was directed to the striking and immediate effects of "resistance exercises" on the size of the heart. I was also permitted, through the courtesy of Professor Schott, to note the results of the first thermal bath on the heart in a case of extreme cardiac dilatation. The notes are as follows:

CASE 10.—P. L. P., aged 31, single, German by birth; occupation, musician; height 5 feet 7 inches; weight, 119 pounds (loss of 30 pounds). The family history reveals that one sister had rheumatism and heart disease combined, and one brother died of tuberculosis.

History.—Patient has had childish diseases; at the age of 8 he had an attack of acute rheumatism, which recurred annually for 6 years. In 1893 he had pneumonia, with good recovery. He formerly indulged freely in beer, but not since the present illness began; had paid no attention to diet or exercise.

Present Illness.—The present illness began in February, 1904, as a bronchial catarrh, with dyspnea on exertion, palpitation of the heart and considerable cough; occasional night sweats and fever at intervals were present. August 23 a physical examination showed a wavy and rapid impulse, but no thrill; percussion dullness extended to midaxillary line on the left, and ½ inch beyond the right sternal edge in the opposite direction, and upward to third interspace; a murmur was heard at the apex with the systole, and at the base (slight) with the diastole; the pulse, after resting for one-half hour before the bath, was 120, small and compressible (pulse resembles that of true tachycardia at times). In the bath the patient seemed nervous, and pulse remained the same; after the bath, and after having rested for five minutes, the pulse was 116, but fuller, stronger and more regular. The physical signs after bath: Impulse seemed somewhat more forcible; the murmurs were slightly accentuated and the area of dullness decidedly lessened. This patient was sent to Nauheim by one of Berlin's foremost clinicians, but was not regarded as a suitable one by Prof. T. Schott, on arrival (Fig. 2).

Fig. 2.—Black line, before mild thermal bath. Dotted line, after bath—8 minutes. R. N., right nipple: L. N., left nipple.

The manifest shrinkage in the size of the heart following the first bath, however, is not maintained, as holds true also in the case of the "resistance exercises"; each new bath, however, leaves the organ a little smaller than the previous one, and thus compensation is finally restored, in most cases, at least. It must be well understood that in the treatment of cases in which chronic dilatation less or more is present, the object is not alone to diminish the size of the organ, but to establish a true compensatory hypertrophy. It is to the fulfillment of this end that the Schott methods lend themselves with the most satisfactory results. It is often necessary for the patient to resume baths from year to year in order to accomplish rehabilitation of the cardiovascular forces.

There is a large class of cases, caused principally by an overstrenuous life especially involving severe mental taxation and characterized clinically by neurasthenia, evidences of malassimilation, indigestion and a moderate degree of dilatation of the heart with its usual accompaniments. This group receives striking benefits from a properly regulated bathing course. Great care is necessary in the conduct of this special mode of treatment in this group of cases, since the nervous phenomena are readily aggravated by the irritating effect of the baths on the cutaneous sensory nerves. I was permitted to observe the effects of the Schott method in a number of instances of the sort, all of which were apparently relieved. I may here cite the notes of a case in point:

CASE 11.—J. T., aged 49, physician; height, 5 feet 11 inches; weight, 189 pounds. Mother suffered from mitral regurgitation, but later died of erysipelas; father also deceased at 76 years, of pneumonia; rheumatic taint on both sides of the family antecedents.

History.—The previous history furnishes the following data: Childish diseases, chorea at 12, lobar pneumonia at 17, and acute articular rheumatism (lasting 10 days) at 28 years, and a subacute attack, implicating the knees, one year ago. Social history is exceptionally good, so far as his habits are concerned; he also has regulated the diet and taken physical exercise, although not regularly.

Present Illness.—The present illness dates from his forty-third year, when he became nervous and dyspeptic; more recently he has complained of palpitation of the heart, especially on retiring, and of troublesome flatulency on partaking of starches and sweets. He has also been troubled with insomnia and irritability of disposition.

July 29, 1904, a physical examination reveals a pale, moderately well-nourished individual. Apex beat is not visible, but palpable, situated one-half inch to the left of the left vertical nipple line; this is corroborated by percussion on auscultation, the first sound is found to lack vigor and the cardiac rhythm shows great instability. No murmurs, however, are audible and the second sounds are practically normal. The patient was given thermal baths for three days; temperature of bath advised was 32.5° C.; the duration of the first bath was 8 minutes, and the second and third 10 each. A pause of 48 hours was then advised, after which three more thermal baths, to which 1 liter of "*Mutterlauge*" was added, were ordered; this reinforcement to the bath proved too stimulating, hence it was omitted after the second bath; it had caused sleeplessness and a constantly excited action of the heart; the time of these baths was 11, 12 and 12 minutes, respectively, followed by a pause of one day, then thermal-sprudel baths, varying in duration, of 8, 9 and 10 minutes, respectively, were employed. The good effects now began to manifest themselves, and the baths were prolonged to 12 minutes, but omitted every third day. After six thermal-sprudel baths had been taken, sprudel baths of a somewhat lower temperature (31° C.) were advised. On the first day the duration was but 8 minutes, second, 9, and third and fourth days, 10 minutes each; fifth day, 11 minutes, and sixth or last day, 12 minutes. A pause was taken every third day. After three days, "resistance exercises" were also employed, their duration and severity being gradually increased with the progress of the treatment. Patient was then sent to the Tyrol mountains for an "after *kur*." Up to the time he left Nauheim, he was troubled with more or less palpitation and sleeplessness and other nervous phenomena. His heart, however, had returned to its normal dimensions, so far as could be made out by physical signs. At the conclusion of the stay in the mountains, marked and rapid improvement in the condition of the nervous system ensued, and in the course of one month subsequently the patient reported that he was apparently restored to health.

Cases of exophthalmic goiter have yielded completely to the treatment, and I saw one well-marked case after a cure had been effected.

It would appear from my observation that the primary effect of this method of treatment is to provoke an aggravation of the nervous symptoms in some cases, at least, and this may readily be carried too far by the unguarded. Within certain limits, however, this stimulation exercises a salutary influence on the heart's action, the respirations and the systemic circulation of the blood, promoting the warmth of the body and regulating the tissue metabolism to an extraordinary degree. Subsequently, the excitation of the nervous system produced by the baths gradually subsides.

The "after-cure" constitutes a not unimportant element of the treatment. The patient is generally sent to an altitude ranging from 1,000 to 3,000 feet above the sea level, is rigidly isolated from professional, business and domestic cares and responsibilities, and permitted to enjoy an abundance of pure air and sunshine. With reference to altitude, it may be said that the patient's special condition must be carefully considered in reaching a judicious decision. The length of the

stay is variable, although on the average about ten days to two weeks.

No presentation of the subject of the Schott methods in the treatment of chronic cardiac diseases would be complete without a brief mention of the contraindications to the treatment: 1. Cases presenting fever. 2. Advanced arteriosclerosis. 3. Far advanced myocarditis. 4. The closing stage of chronic valvulitis, with extreme dilatation of the chambers. 5. Aneurisms of the aorta or of its larger trunks, except in the incipient stage. In any case in which the blood pressure is lowered by the balneologic treatment. 7. Cases in which a tenometric figure as low as 65 or 60 mm. of mercury is found (Schott). 8. Cases in which chronic bronchitis and asthma are well marked (Baldwin).

Dr. James Tyson, in his paper cited above, has given a full and accurate description of the home-made baths, and to this paper the reader is referred for details. Tyson points out the great advisability of more conveniently available baths than those to be found at Bad Nauheim. I am in accord with this view, but I am not aware of the existence of specially trained operators to carry out the "resistance exercises"—an essential element of the method.

Moreover, the good effects of a favorable environment and of complete extrication of the patient from business and domestic cares and worriments, are, as a rule, lost when artificial Nauheim baths are attempted. If we take into consideration all these shortcomings and imperfections, there is little need to wonder at the unsatisfactory results which are only too commonly obtained. To practice the Schott method with success at home demands a separate, well-equipped and properly officered institution, and one far removed from the more densely crowded centers of population. Such an institution has yet to be produced in America.

In concluding, I desire to state that my studies and observations have fully confirmed the correctness of the principles of treatment long since established by the Brothers Schott, and unquestionably to them belongs the merit of having introduced to the medical profession a most efficient method for the treatment of those afflicted with cardiovascular diseases. Great, therefore, is the debt of gratitude which the profession owes to these gentlemen for what is most advanced and most valuable in the sum of our achievement in the treatment of this large group of affections.

DISCUSSION.

DR. JAMES TYSON said that he has limited himself to the home use of the Nauheim baths, because in this connection there is the greatest opportunity for its employment, the expense of a trip abroad and treatment at Nauheim being impossible to the majority of persons. He does not think a bath establishment is necessary and he has used the treatment in private houses in the use of the ordinary bath. A person is required to conduct the bathing as well as the exercises, although both may be done by the same individual. The baths, he believes, could be made very much simpler than the paper by William Bezly Thorne would lead one to believe. Chlorid of sodium and the chlorid of calcium were stated to be the two most important constituents. Five pounds of chlorid of sodium and five ounces of chlorid of calcium are put into the ordinary bath of from 40 to 50 gallons of water. The course consists usually of 21 baths, three of which are given in succession and then a day skipped. The proportions of sodium and calcium are increased until in the last five or six baths the water contains about ten pounds of the former and ten ounces of the latter. At home the carbonic acid element of the bath is secured by adding hydrochloric acid and bicarbonate of sodium. The cases that receive the most benefit, Dr. Tyson said, are those of cardiac weakness with dilatation, chronic dilatation brought about gradually as the loss of compensation is brought about in valvular cases, and also cases in which there has been muscular overexertion. Acute dilatation, he remarked, is best treated by rest in bed and by the use of nitroglycerin, etc. In such a case partially recovered improvement may be completed admirably by the administration of the Nauheim bath at that stage. The bath should not be given in cases of edema and general dropsy. Dr. Tyson thinks the patient a pretty good guide regarding the continuance of the bath; if he does not feel well after three or four baths, it is a mistake to continue them. Better is it to put the patient to rest. The first bath he makes five minutes in length, the second six or seven minutes, which time is increased to ten or fifteen minutes. Coincidentally with the increased duration of the bath the temperature is lowered. Eighty-two or 85, he said, is the lowest temperature at which the baths are given at Nauheim.

DR. JUDSON DALAND said that the most important features of the treatment can be subdivided as follows: The baths and movements, change of climate, régime. In the home use of the bath he attaches less value to the chlorids of sodium and of calcium than to the water and to the variations in temperature. He thinks that all physicians have gotten into the habit of using the resistance movements in combination with massage and of encouraging patients to make certain voluntary movements in cases of broken cardiac compensation. The use of the method in angina pectoris, he thinks, would be experimental. In dilatation of the heart with moderate sclerosis in persons of middle age he has found the treatment beneficial in some cases. Before instituting this treatment in such cases he determines the cardiac reaction by having the patient make a certain number of movements.

DR. S. S. COHEN referred to his demonstration before the society of the Schott treatment some eight years ago with the efficient aid of Dr. Charlotte West, and stated that Dr. West is available for the carrying out of the Schott resistance movements, as well as four other persons whom he has trained. He thinks that there is no difficulty in having the baths given at home, if the patient and physician are willing to take a little trouble in getting them started; intelligent patients can be entirely trusted to carry out the details. In preparing the bath the plan which Dr. Cohen has adopted and which has the advantages of preventing the cooling of the water and injury to the tub is to fill the tub half full of hot water, put in the brine and the bicarbonate of soda; let them remain for about twenty minutes so that they are thoroughly disseminated throughout the whole mass of water; then add sufficient water, which can be cold or lukewarm, according to the temperature to which the original quantity of water has cooled; then put in the acid sulphate cakes on the tinfoil and there will be a thorough effervescence. A valuable element in the treatment at Nauheim, Dr. Cohen believes, is the personality of Dr. Schott. His scientific spirit, his authoritative manner, thorough mastery of routine and of detail, the absolute obedience which he gets from all the attendants count for a good deal.

In the home treatment Dr. Cohen's plan is to give the baths in a course of six or eight weeks, interrupting them for eight or ten or twelve weeks and then again repeating them for two or three weeks; then again interrupting them, and again repeating. The best time to give them he considers to be at night so that the patient may have several hours' continuous rest afterward. He gives the baths every other day or every third day, giving exercise on the alternate days, if exercise is to be given. Sometimes the baths can be followed by massage, the character of which will vary with the character of the lesion and the reaction of the patient. He confirmed Dr. Anders' statement of the value of this treatment in exophthalmic goiter, but also stated that there is great danger in its employment in this condition. He would not trust patient nor attendant to give the treatment in exophthalmic goiter. In a few cases he believes it would do good if carefully applied and by the physician himself. In cases of arteriosclerosis not too

far advanced he has seen good results; also in angina pectoris, in mitral stenosis and in mitral regurgitation. He differed from Dr. Daland concerning the resemblance between the effect of active exercise on the part of the patient and the gentle resistance movement of the Schott system. In the Schott system there is no muscular exercise on the part of the patient at all. The moment exercise is made the patient defeats the object of the treatment. The method is, he said, "*gentle* resistance." The benefit obtained is in the starting up of the peripheral muscular pump on the vessels so that the action of the natural rhythmical contraction of the muscles on the vessels continued to assist the work of the heart. The carbon-dioxid gives to the "skin heart" a much more active stimulation than could be secured from massage or electricity, though the principle is just the same, the diversion of the blood to the surface and the stimulation of the vasomotor reaction.

DR. P. S. DONNELLAN said that he believes it is the combination of the baths, the resistance exercises, the environment and the care in diet which contribute to the success of the Nauheim treatment. A good feature, he pointed out, is that the bathtub is sunken into the ground. He considers the resistance exercises a valuable addition to the treatment in that they supply a distinct element of cure in those cases of cardiac dilatation, arteriosclerosis and some valvular conditions. He thinks that great care should be exercised in the selection of cases sent to Nauheim. He referred to the importance of the after-cure, which consisted in the patient being sent to the Black Forest or to some portions of Switzerland to complete the cure after a period of six or eight weeks' treatment at Nauheim.

DR. WILLIAM S. WADSWORTH referred to the physiologic principles underlying all treatment. In regard to the effect of the various ingredients of the bath on the stimulation of the skin and the effect on the sensory nerves, there is, he said, a very great additional effect not mentioned, the effect on the skin itself. For example, on putting a piece of skin, alive or dead, into water there is obtained a certain amount of maceration and an entire change in the feeling of the skin. If the finger is put into the water for half an hour the sensations are entirely different from those encountered from the air. All, he said, know the difference between the sea bath and the ordinary bath. Another factor in the bath, he pointed out, is the suspension of the body in a material which is of a certain specific gravity. Putting the body on a water bed, he considered, is also a very important factor. The changes of the specific gravity will bear the closest clinical study and should give interesting results. In the resistance movements Dr. Wadsworth stated there is a series of valuable factors developed of a purely mechanical sort. On the chemical side there is another group; a chemical change taking place in the muscle itself. Certain substances are taken up, causing change of tone of the whole system. Fatigue stuffs are thrown out which have a distinct effect on every organ that comes in contact with the blood.

DR. J. MADISON TAYLOR emphasized the importance of the physician, himself knowing enough about the question of exercise to direct a competent person to do the work. He thinks much can be gained if men will take the trouble to study their cases thoroughly, and watch them through from start to finish.

DR. J. M. ANDERS said that he is not convinced that the home treatment can be carried forward with much success. To have a suitable establishment in this country would require a specialist in heart disease to make the treatment a special study, and this one should watch the patient daily, noting the effect of every bath and every application of the resistance movements.

Formaldehyd for Disinfecting.—An improved method of disinfecting is the subject of a recent English patent, according to the *Pharmaceutical Era*. One part of paraformaldehyd and six parts of carbon, both in finely powdered condition, are mixed with sufficient gum tragacanth or other suitable gum to form a stiff paste, which is pressed into blocks and dried. When required, the blocks are ignited, formaldehyd vapor being thereby gradually and uniformly disseminated.

PARAURETHRITIS.

AN ANATOMIC REVIEW, WITH A REPORT OF TWO CASES.

J. W. CHURCHMAN, M.D.
BALTIMORE.

The recent occurrence within ten days of two rather unfamiliar forms of gonorrheal infection seemed to offer material of enough clinical interest to be worth recording and of enough anatomic interest to warrant detailed study of the structural features illustrated; and at the suggestion of Dr. Young,[1] in whose practice the cases occurred, the following report has been prepared:

The urethra may be roughly described as a tubular structure, with dependent glandular adjuncts; for throughout its whole extent, from meatus to internal sphincter, and even beyond in the trigone, glands or crypts are to be found occupying a "para-position" in relation to it. All of these are of clinical interest as haunts of infection; some, like the prostate and vesicles, have, beside, a very definite pathologic and physiologic interest of their own; but many (most of them, though small, by no means insignificant) bear so intimate a relation to the urethra that we can only speak of them as paraurethral and of their infection as paraurethritis. Strangely enough, the well-known proper names associated with many of these structures are so associated with little or no justice. Tyson's glands do not exist; Skene's glands were described and their gonorrheal infection noted by Astruc 125 years before the American publication, and again by Guérin in 1864; Littré was probably looking at something quite different from the glands which have since borne his name when he noted structures in the membranous urethra which were, as now seems likely, not glandular at all; and Cowper was antedated just eighteen years by Méry in describing the glands usually known as his.

For their discoverer, in 1680, there was no doubt as to the glandular nature of the depressions he saw on corona and cervix, and from their supposed function (they were first observed in the orang-outang) Tyson called them odoriferous glands. Morgagni subsequently denied their existence as anything more than depressions. So did Haller, Finger and others; and Sprunk, in a Königsberg thesis (1897), reported that an examination of 300 adults had failed to reveal Tyson's glands in a single case. Kölliker, taking a safe middle position, regarded them as inconstant, and only sebaceous glands at best. It seems quite probable, as Delbet[2] has shown from a study of the published cases, that what Tyson and others took to be true glands were only the papillæ and interpapillary spaces of Littré, and that there are no true glandular structures on corona or cervix. Behind the corona and on the mucous layer of the prepuce there are, of course, sebaceous glands, atrophied and rudimentary, and the products of these unite with some desquamated epithelium to form smegma.

The features of the urethral mucosa proper begin with the valve of Guérin, an epithelial transverse fold lying in front of the fossa navicularis, which it closes off somewhat as the aortic valve does the aorta. It is sometimes described as analogous to the lacunæ of Morgagni (so Janet[3]); but both its histology (its epithelium is

1. I am also indebted to Dr. Young for suggestions as to the best use to make of the material he was kind enough to put at my disposal.

2. Delbet: L'Appareil Génital de l'Homme (in Poirier and Charpy's Traité d'Anatomie Humaine).

3. Janet: Les Repaires Microbiens de l'Urètre, Annales des Maladies des Organes Génito-Urinaires, No. 19, 1901, p. 897.

squamous in type) and its embryology show that it really deserves separate consideration. For the genito-urinarian it is chiefly of interest as offering resistance to the introduction of instruments; and it provides the stereotyped exception for that stereotyped rule of the textbooks about hugging the superior urethal wall in passing sounds. Just back of this peculiar valvular fold begins the familiar series of glands and lacunæ usually associated with the names of Morgagni and Littré. Of these glands it may in general be said that they are more numerous on the upper (anterior) wall than on the lower (posterior); that they are present throughout the urethra, reaching even into the bladder as the aberrant glands of Littré, and that they appear about the third month of fetal life, though their development probably continues after birth (Rubin and Cadiat). Around the prostatic portion they lie in linear series; in the membranous they are scattered without order, though Motz and Bartrina[4] have recently called attention to the clinical importance of certain definite groups; and in the spongy portion they are abundant on the upper and numerous on the lateral surfaces. Their importance as harborers of gonococci needs, of course, no mention. The crypts of Morgagni—blind depressions, having the same structure as the urethra, and not glandular at all—are found from the valve of Guérin to the membranous urethra, where they usually disappear. They are arranged in linear series and were divided by Morgagni into foramina and foraminula, to which Sappey made the somewhat superfluous addition of a middle class. In the median line and on the dorsal surface they are largest, reaching their maximum in the well-known lacuna magna of the fossa navicularis. One 27 mm. deep was reported by Cruveilhier, but usually they do not run more than 6 or 7 mm.

In the female the urethral glands have less clinical importance, in proportion as urethritis is a less troublesome disease. In the clitoris, the morphologic analogue of the glans, no true glands exist, though there is usually a mucous crypt on the posterior inferior face, where in one case Wertheimer found the opening of a true clitoridean gland. In the urethra itself true acinous glands, though less numerous than in the male, exist throughout its extent. Of much greater interest and importance, however, are the well-known paraurethral structures to which Skene's name, by a sort of common consent, has become inseparably attached. Anatomically they are a puzzle. For a long time supposed to be the remains of Gärtner's canal, they were later explained as analogues of the urethral lacunæ; but their early appearance (they are first seen in the 65 mm. fetus), their constancy in the human female, and their general developmental history, make it probable that they are really homologues of the *prostatic* glandules—a probability pointed out by Astruc as early as 1755. The position of their orifices, the general course of their canals and their relation to urethral infections suggest quite strongly their clinical analogy to the paraurethral ducts seen in the male, whatever be their exact anatomic nature.

All these features of the male and female urethra occur with enough constancy to be considered normal. In a certain number of cases, however, additional depressions and ducts are found, whose infrequent occurrence gives them anatomic and clinical interest. They may take various forms,[3] from a mere depression on the lip of the meatus to the system of small canals, giving to the glans of hypospadias a veritable moth-eaten character. In any case, they are admirably fitted to store away the elusive organisms—better fitted, of course, as their complication or the deepness of their site increases. Most frequently they occur as small openings on the lips of the meatus, which may prove to be mere depressions (Fig. 1), the mouths of culs-de-sac, or the orifices of true, and, in some cases, long canals, running in general parallel with the urethra (Fig. 2). Varied, too, are their terminations; now they lie beside the meatus as pin-point orifices or suggesting a double meatus; again they are found to open into the fossa navicularis, like a complete fistula; occasionally they burrow through one urethral wall to form a true sinus (Fig. 3a); sometimes (the subphrenal pouches) they run along in the prepuce, where they may be felt as cords, to open into the urethra, or exteriorly, or both (Fig. 3a). In other cases a transverse depression occurs in the lateral walls of the fossa

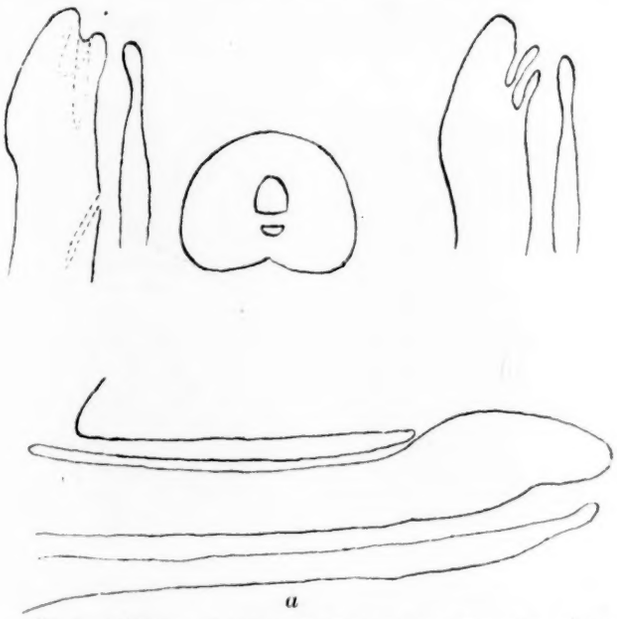


Fig. 1.—Diagram of paraurethral structures above the urethra. a. True dorsal fistula. (Modified from Janet.)

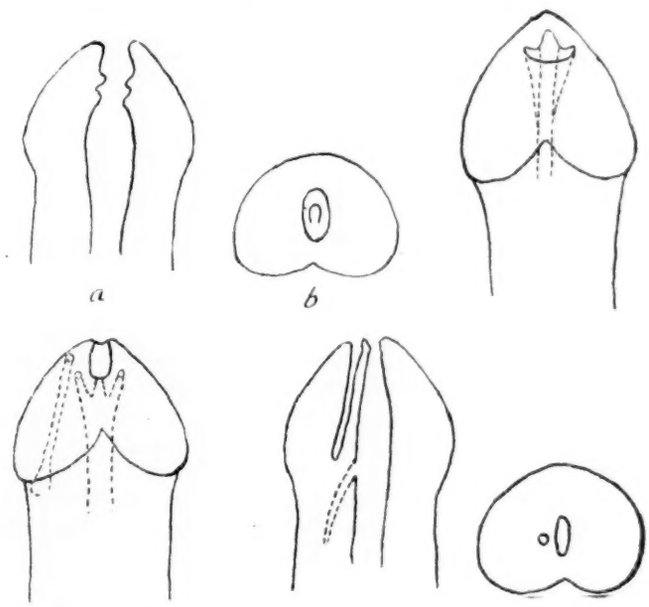


Fig. 2.—Diagram of paraurethral structures lateral to the urethra. a. Diaphragm formation; seen at b. reaching only partly around the urethral circumference. (Modified from Janet.)

4. Motz and Bartrina: Contribution à l'Etude des Abscès Périnéaux et des Phlegmons diffus d'Origine uréthrale, Annales des Maladies des Organes Génito-Urinaires, No. 21, Nov. 1, 1903.

navicularis and forms a diaphragm running, in certain of the patients, only partly around, and suggesting, by the combination of a vertical with a transverse meatus, the beginning of hypospadias (Fig. 2b). A true dorsal fistula may also occur, beginning just behind the glans and running back to the pubic symphysis (Fig. 1a). It is easy to see how complicated a picture combinations of these conditions may give, and this is what we actually get in hypospadias. In this deformity small median de-

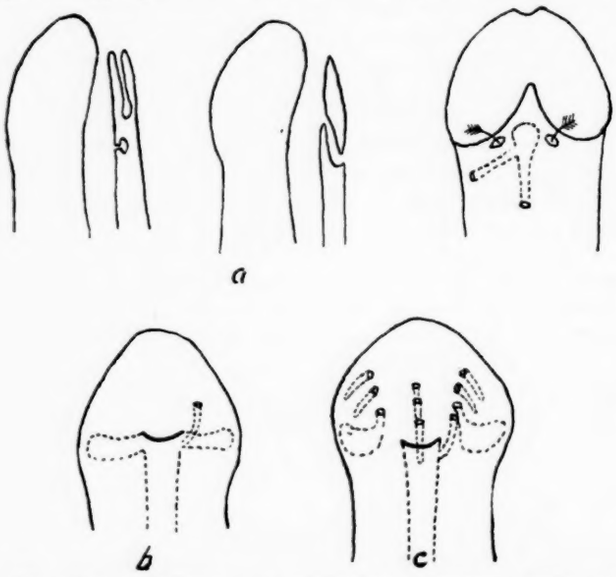


Fig. 3.—a. Diagram of paraurethral structures below the urethra. b. Lateral urethral pouches. c. Guyon's case. (Modified from Janet.)

pressions on the floor of the false meatus, or of what is really the opened fossa navicularis, are very frequently seen (Figs. 3c and 4); but all sorts of lateral and median canaliculi have also been observed, all of which, except the large, pouch-like urethral auxiliaries seen in Figure 3b, were observed in a patient of Guyon's (Fig. 3c), the richness of whose penile anatomy was somewhat counterbalanced by the co-existence of monorchism. Of the unusual paraurethal gland-like structures it may then, in brief, be said:

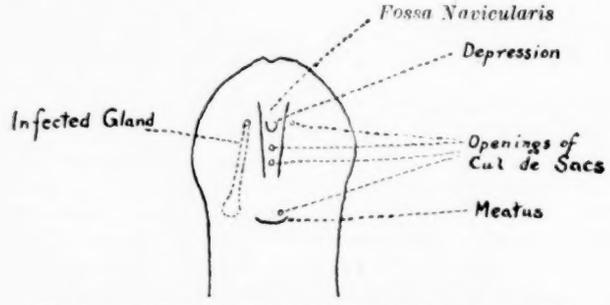


Fig. 4.—Diagram showing conditions in Case 2. (D. C.)

1. They are more frequently seen with hypospadias than in the normal penis.

2. They may occur above, below or lateral to the urethra.

3. They are oftenest seen, when hypospadias is not present, on the lips of the meatus.

4. They vary in extent from slight depressions to long ducts.

5. They may be independent of the urethra or directly connected with its lumen.

6. They secrete a clear serous fluid.

7. They may take the form of a true fistula running either more or less parallel with the urethra or burrowing through the body of the penis to connect with its lumen.

8. The most frequent form, in hypospadias, consists of median depressions in the wall of the fossa navicularis.

9. They may be responsible for persistent infection by offering a safe haunt for organisms.

In the deeper portions of the urethra we find, of course, paraurethral structures analogous to those in front; but these, by reason of their familiarity and their right to a consideration as distinct organs rather than urethral adjuncts, do not concern us here. It may be of interest, however, to note, in connection with the question of infection of paraurethral structures, the valuable article recently published by Motz and Bartrina.[4] These writers, from a study of a large number of pathologic specimens, have come to the somewhat novel conclusion that the conventional ideas about perineal abscess following stricture are all wrong; that Hunter was on the right track when he spoke of these conditions as primarily urethral or periurethral suppurations; that they actually start in suppuration of the "urogenital glandular thoroughfare," composed of prostate, vesicles, Lit-

Figure 5.

Figure 6.

Fig. 5.—Showing a drop of pus exuding from infected gland in Case 2. (Drawing from photograph.)

Fig. 6.—Showing extent and direction of infected gland in Case 2. a. Hypodermic needle. (Drawing from photograph.)

tré's glands, Cowper's glands, and the aberrant Cowper's or intrabulbar glands; that often, if not usually, the urethra is intact, and that "infiltration of urine" is a misnomer for what is really a diffuse bacterial phlegmon (Albarran's "acute septic edema of urinary origin"), the urine being not causative at all, but quite secondary.

CASE 1.—(S. W.) This was a case of paraurethral infection appearing during the course of a urethritis and occurring in an otherwise normal penis. The patient was first seen on Nov. 26, 1902. The history was of exposure five days previously. There had been urethral burning for three days, but the discharge had not been seen until the day before admission. The left inguinal glands were palpable. There was pus in the first glass; the second and third were clear; the patient denied all previous genitourinary trouble. Gonococci in great numbers were found in the discharge and the case was, of course, one of ordinary acute anterior gonorrhea. The usual treatment with daily irrigations was instituted, santal being given internally and the patient advised to drink copiously of water. For three weeks the course was uneventful, the urine showing no posterior involvement and the discharge gradually diminishing in amount and becoming more chronic in character.

On Sunday, December 26, patient first noticed a small papule on the glans penis near the urethral orifice. On examination I found a pin-point opening on the lips just to the left of the meatus and about opposite its middle point, surrounded by a reddened area with no accompanying induration. On squeezing, a small drop of pus exuded, rich in gonococci. A fine probe could be inserted for a distance of about 3 cm., and ran back and somewhat to the left. No other gland could be found. The urine, which on the patient's last visit had been suspicious of posterior involvement, now pointed to it plainly so that posterior irrigations of 1 to 10,000 silver nitrate were started—treatment of the urethritis from this time on taking the usual course. The infected paraurethral gland was touched with pure carbolic acid on a fine probe, a small piece of cotton was inserted between foreskin and glans and the latter cleaned with peroxid. For the next three days the paraurethral gland continued to discharge despite daily touchings with pure carbolic acid. On January 13 a very little seropurulent discharge could be squeezed from the gland, made up of disintegrated pus cells. One cell was seen containing gonococci. The next day an injection of 2 per cent. protargol was given with a blunt hypodermic needle, and on the 19th no pus could be obtained and no induration felt. On the 22d, however, a fairly large number of gonococci were found in the pus squeezed from the gland and an injection of peroxid was given. The patient was next seen on February 11, when the paraurethral infection had entirely subsided and no discharge could be squeezed from the gland. The subsequent history was the conventional story of chronic urethritis.

CASE 2.—(D. C.) This was one of paraurethritis appearing as the primary gonorrheal lesion in a patient with hypospadias. This penile deformity was an inheritance which had come through the mother's family, three maternal uncles and one maternal great uncle having had hypospadias exactly similar to the patient's. Two brothers, both dead in infancy, had no such deformity. The accompanying very small urethral orifice had, during childhood, given the patient no trouble except the inconvenience of a small urine stream. There was no history of nocturnal enuresis. At 9 years of age the patient was circumcised and the urethral orifice enlarged. Since his fourteenth year he had a good deal of urethral irritability, which began after a small dose of turpentine followed shortly afterward by dreadful strangury without hematuria. Since this time, however, when the urine is dark in color and "concentrated," urination has been accompanied by mild burning. A second attack of strangury without hematuria occurred last year subsequent to the taking of a large number of oranges. There was no history of previous genitourinary trouble. The patient was first seen January 8, giving a history of exposure on December 29 and 31, to the second of which he had reason for tracing his infection. There had been no previous exposure since October 15. Absolutely nothing was noticed until the morning of January 7, when there was some slight itching on the glans. On the night of the 7th a slightly inflamed point on the right lip of the false meatus was noticed, without any suspicion of urethral symptoms. The patient, who was a medical man, thought immediately of lues and spent a miserable night with the books of his student days. He was seen next morning in a highly nervous state, thoroughly convinced that two years of mercury and iodids lay before him. On examination the testicles were found normal, the globus major on both sides palpable, but not tender; veins of the cord enlarged. No rash, glands nor constitutional symptoms. The penis was deformed, as shown in Figure 4. On the right lip of the open fossa navicularis, about one inch from the true meatus, was a small reddened papule with no surrounding induration. No opening was to be seen, but on squeezing the papule a small drop of pus exuded (Fig. 5). A smear showed intracellular diplococci somewhat larger than gonococci and not uniformly stained. Nor was the Gram test decisive, some of the organisms decolorizing and others retaining the stain; but smears made next day on hydrocele agar gave a pure culture of gonococci with a typical Gram reaction. The urethral orifice was somewhat reddened, but there was no sign of discharge nor had there been any burning or other sensation. In the first glass were a few flakes of pus which did not contain gonococci; second and third glasses absolutely clear. The glandular orifice was cauterized with pure carbolic acid, the glans and then the anterior urethra well washed with potassium permanganate. The patient was told to keep the glans clean with peroxid. That afternoon the gland was again cauterized, the anterior urethra washed with a mild bichlorid solution, after carefully cleaning off all infection from the glans, and an effort made toward prophylaxis of the anterior urethra, possibly not yet infected, by an instillation of a 2 per cent. protargol. Lafayette mixture and large quantities of water were ordered internally. Next day there were still shreds in the first glass and carbolic cautery for the gland with 2 per cent. protargol in the urethra was again used. This was repeated on January 10, and on January 11 protargol, 2 per cent., was injected into the infected gland with a blunt hypodermic needle (Fig. 6), the glans being afterward wrapped in cotton soaked with protargol which, owing to the deformity, could fortunately be made to cover the infected orifice without blocking the urethra. January 12 the gland was still discharging; a smear made just at the meatus showed some gonococci, but as there was no discharge beyond a small amount of mucus, and as there had been absolutely no symptoms, it was felt that these might well be accidental from the infected gland and not from an infected urethra. A few flakes of degenerate pus continued in the first glass, but no gonococci could be found in it. On January 13 there was slight enlargement and tenderness of the glands of both groins and the patient reported having had priapism, without pain or chordee, during the previous night. Next day there was a slight amount of pus at the meatus which contained gonococci. The usual treatment of the gland was continued and regular tridaily permanganate irrigations of the anterior urethra were started (1 to 2,000, increasing to 1 to 800). On January 16 a lymphangitis running along the left side of the penis was noted. The gland was irrigated with 1 to 1,000 bichlorid and injected with 2 per cent. protargol. On January 17 pus could be squeezed from the gland in quantity and peroxid was injected with a blunt hypodermic. January 19 there was marked improvement. The urethral conditions remained the same and no gonococci could yet be found in the flakes of pus which continued in the first glass. On January 25 silver nitrate, 1 to 5,000, was substituted for permanganate in the urethral irrigations. No gonococci could be found in a smear from the urethra nor in the pus of the first glass. On January 26 the patient complained of some pain in the right hip joint and next day he was confined to bed with grip. Gonococci gradually decreased in number under treatment and on February 9 they could not be found in the gland which, four days later, was absolutely healed. Continued search for organisms in the urethra and in the few shreds which continued in the first glass failed to reveal them, but an irrigation test showed that some of the shreds had a posterior origin and posterior irrigations were started on February 11. Slight strangury followed their use, and on February 17 patient was taken with rectal pain, a severe chill, vomiting and temperature of 100 degrees. This condition lasted all night, but patient was well again next day. On February 28 examination of anterior urethra on a bougie was made and a few small indurations found. The massage caused some burning and on the night of March 2 patient had a chill with vomiting and fever. A few shreds still persisted in the first glass and a few indurations were palpable on a bougie, but there were no symptoms, and the prostatic examination showed only a few leucocytes in the secretion.

REMARKS.

This case was of interest by reason of the co-existing hypospadias,[5] the doubtful diagnosis in its early stage,

5. I have since seen a patient with chronic urethritis and hypospadias who showed paraurethral ducts on the right lip of the fossa navicularis and just to the left of the true meatus (similar to the condition in Case 2). Both are now perfectly normal, but there is definite history of their involvement during the acute attack four years ago.

when it might easily have been taken for a beginning chancre, a small chancroid or even an infected herpetic blister; the subsidiary character of the urethritis (due largely, no doubt, to the accident of co-existing hypospadias), the presence of unusual urethral irritability, making treatment difficult, and the long persistence of gonococci in the infected duct in spite of vigorous treatment. Indeed, having once seen a paraurethral infection, one wonders not that gonorrhea is so seldom cured, but that it is ever cured; and to have observed a duct, thoroughly irrigated with 1-1,000 bichlorid and then cleaned with hydrogen peroxid, the next day discharging gonococci in numbers, makes it easy to understand why gonococcicides have been more numerous than uric acid solvents, and equally effective. The observation of such a case impresses one with the importance of the mechanical effect of irrigations in urethritis, and the relatively small importance of the specific "anti" effect of the material used. The intraurethral glands are, of course, not so deep as the paraurethral glands, but the conditions there are similar to, if not so extreme as, the rarer affections; and in them, as in the paraurethral cases, the gumming of the glandular mouth, with the formation of a sealed tube containing a pure culture of gonococci in a congenial medium, ought, it seems to me, to be combated by irrigations, the frequency of which is of more importance than their composition. In my first case the gland was quite shallow, urethritis was already present, and the treatment was, therefore, quite unimportant. In the second case, conservative measures were persisted in, consisting of irrigations, strong antisepsis and cauterization, for it seemed unwise to cause any bleeding in the presence of a blood-infecting organism; and, moreover, to have converted this cul-de-sac into a sinus open at both ends, while it would, of course, have given better drainage, would, at the same time, have brought the source of infection nearer the meatus and so have abused the very protection against urethritis which Nature had provided in the hypospadias. Operative measures have, however, been advised, and Janet[5] has devised special instruments for the purpose, the object being either to convert the blind internal fistula into a complete fistula by incising it toward the urethra, or to open its blind end and so provide for through-and-through drainage. The method of incision was used with good results by Genouville[6] in a case of gonorrhea involving two glands, lateral to the frenum, without a co-existing urethritis; and in a case of recurrent gonorrheal urethritis traced to a latent infection of paraurethral gland in a patient with hypospadias (the canals opening both into the urethra and externally) Reymond effected a cure by instillations of strong permanganate. In Swinburne's[7] four cases operative treatment was avoided, application to the infected gland being relied on, together with whatever urethral treatment was indicated. One of these cases resembled my second case in several important particulars, for, though there were never any symptoms of urethritis (the infection was lodged in paraurethral meatal glands) and no cloudiness in the urine, gonococci, which, as a rule, could not be found in the urethra, occasionally appeared there, just as I was able to find them now and then without having caused as much burning as the patient often experienced in his uninfected irritable urethra and without appearing there with any consistency.

It would be interesting to compare the frequency of paraurethritis with the proportion of males having the anatomic abnormality necessary for its development. Theoretically, it is hard to conceive that such glands, when present, would ever escape infection, lying directly exposed, as they do, not only to the original source of infection, but also to the discharges of a urethritis. The strange freaks of contagion, however, are not to be theoretically prophesied with any exactness, for in my second case the urethra, to which careful prophylactic attention was paid, showed signs of at least temporary infection and continually provided the urine with shreds, while the small gland on the opposite meatal lip, though unavoidably exposed and practically untreated, escaped infection entirely. The number of gonorrheal cases with infected paraurethral glands ought to be the same as the number of gonorrheal cases with paraurethral glands to infect; and the relative rarity of paraurethritis means probably that it is frequently overlooked, and that paraurethral glands are a rather rare anatomic feature. In women in whom "gonorrheal urethritis is an almost constant manifestation of fresh infection" (Bumm[8]), Skene's ducts, occupying a site of somewhat similar exposure, are, of course, very frequently infected, causing the well-known reddened, pouting projections at the meatus; so that, whatever may be the exact anatomic analogy between the glandular structures of the male and the female lying near the urethral orifice, the frequency and importance of infections in the exposed paraurethral glands of the female lend clinical support to the otherwise theoretic presumption that the importance and frequency of their involvement in the male may have been overlooked.

SUMMARY.

The cases here reported show that:

1. Gonorrheal infection of paraurethral ducts occurs in the male, and that it may manifest itself either during the course of an ordinary urethritis or before urethral symptoms have appeared.
2. Paraurethritis may, in its very early stages, simulate inflammatory lesions of the surface of the glans, notably beginning chancre, chancroid, or herpes.
3. Paraurethral infection, once it has become established, can be destroyed only with great difficulty, the organisms reappearing in abundance even after cauterization of the duct.
4. The infection can be overcome without surgical intervention, and the continual existence of a neighboring focus of infection does not necessarily mean a bad urethral invasion if careful prophylactic measures are taken.

Clinical Report.

PAPILLOMA OF THE ASCENDING COLON UNDERGOING MALIGNANCY.

ILEO-COLOSTOMY (LATERAL IMPLANTATION); ILEOCECOCOLECTOMY; RECOVERY.*

LEWIS WHITAKER ALLEN, M.D.
Attending Surgeon to St. Luke's Hospital.
SAN FRANCISCO.

Papillomata occur in the colon with sufficient rarity as compared to their appearance elsewhere, e. g., in the mucous membrane of the nose, ear, larynx and genitourinary tract, to justify the report of this case.

6. Genouville and Reymond: Discussion before Asso. Franc. d'Urologie. Annales des Maladies des Organes Génito-Urinaires, No. 17, 1899, p. 1198.

7. Swinburne: Report of Cases Showing Unusual Lodgment of the Gonococcus. Journal of Cutaneous and Genito-Urinary Diseases, October, 1899.

8. Bumm: Beitrag zur Kenntniss der Gonorrhea der weiblichen Genitalien. Archiv für Gynäkologie, 1884, xxiii, 327-349; Veit's Handbuch der Gynäkologie, vol. i.

* Reported before the San Francisco Academy of Medicine, September, 1904.

Patient.—Mr. S. B. DeS., an Englishman, aged 36; good family history.

History.—He was always strong and well until the middle of May, 1903. He then complained of a burning sensation in the stomach and colon, of occasional attacks of vomiting, and of loss of strength and flesh. Within a week he noticed blood in the stools. He gradually grew worse, vomited nearly all food, and had small, black, thin stools daily. He lost 42 pounds in 10 weeks.

Examination.—Physical examination showed the heart and lungs to be negative. The abdomen was tympanitic, except on the right side, where palpation revealed a large, hard mass in the ileocecal region extending up to the free border of the ribs. This mass was not sensitive and could not be moved freely.

Treatment.—He was given large enemata of olive oil and olive oil was given by mouth, beside stimulation. He retained the olive oil but vomited all nourishment. He had a movement of small, thin, black stools, containing hard pieces of fecal matter.

Course of the Disease.—This condition of the stools, showing disintegrated blood and hard, marble-like feces, continued until October 1, the patient several times suffering from collapse, at which times his pulse became imperceptible. By October 1 he had lost greatly in flesh and strength, and was profoundly anemic. His emaciation was extreme. There was, however, now no blood in the stools. There was no vomiting and less flatulence. The mass had diminished to the size of an orange, situated in the right iliac region, and had become somewhat more movable. The blood in the stools disappeared with the hard scybala. Through the succeeding months his gain in strength was slow but continuous. April 13 I first saw the patient in consultation with Dr. Harris. I found a fairly well nourished, though anemic patient. His abdomen was normal in appearance, but a mass the size of a small orange could be made out through the newly acquired adipose tissue, in the right iliac fossa. It was freely movable, not tender, and at this time was giving the patient no discomfort. The abdomen was tympanitic over it. It was about the size of a chronically inflamed appendix with a moderate amount of adhesions about it.

Diagnosis.—The question of diagnosis was of some interest. As soon as the colon had been cleared of all scybala the hemorrhage stopped and the patient began to improve. Carcinoma and other malignant growths were now considered improbable. The fact that no bleeding had occurred for so many months forced one to consider other conditions than a papilloma. If the extreme condition to which the patient had been brought was due to the hemorrhages as a result of ulcerations produced by the scybalæ, then the tumor, as found at this time, might be a gumma, hypertrophied gland, or a mass of adherent intestines resulting from the previous ulcerations with peritonitis, or a chronically inflamed appendix with adhesions. There were neither symptoms nor history of syphilis. The growth was too large and too movable to be an enlarged gland. Besides, such a gland would have subsided during these months of convalescence. The mass seemed to have too much solidity to be adherent intestine only. Barring malignant growths, it felt more like a chronically inflamed appendix, surrounded by a mass of adhesions, than anything else. The persistency of the irritability of his stomach seemed to bear this out. Lack of an increase of temperature would mean nothing, as this often is lacking in chronic appendicitis. It was, however, a case for exploratory incision as soon as the patient was in condition. His anemia contraindicated any extensive operation at that time unless necessary, and it was suggested that a blood count be taken. He was found to have 40 per cent. hemoglobin. By June 11 it had reached 70 per cent., and so on June 13 he entered the hospital for operation, not in fine condition for extreme measures on the intestines, but still with a slight margin of strength for the necessary shock accompanying resection if that should be necessary.

Operation.—June 15, an incision was made along the right rectus over the tumor, and it was immediately seen that we had to deal with a tumor on the inside of the ascending colon. The incision was enlarged upward and across the rectus to afford space for intestinal anastomosis. The omentum was incised between ligatures tied about 1½ inches from its right border up to its junction with the transverse colon. The transverse colon was then clamped at the hepatic flexure and tied with a piece of gauze toward the median line. After a purse-string suture had been placed about it on the gauze side, the colon was cut through, the end puckered in with the purse string, and whipped over with catgut. This closed the distal end and the gauze was removed. The other end, after careful cleansing, was wrapped and covered with several layers of gauze for protection. This method was pursued because of the necessity of hurrying on account of the condition of the patient. The ileum was then prepared similarly about three inches from the ileocecal valve, but not severed. The omentum was reflected upward and the large end of a Murphy button was inserted in the usual way into the side of the transverse colon just below it. I took away a small area of the wall to prevent any chance of a later contraction of the new valve. The ileum was then divided, the other half of the button inserted into its proximal end and the union affected—a lateral implantation of the ileum into the transverse colon. After reinforcing the Murphy button with a continuous catgut suture, I drew the omentum down and lightly fastened it over the point of union with two or three fine catgut sutures, and also over the end of the closed colon. After cleansing the field well, the whole was dropped back into the abdomen, covered with a pad and seen no more. I then tied off the ascending colon, cecum, appendix, and stump of the ileum by ligating the mesentery from above downward with strong catgut, occasionally using clamps first. Only at the hepatic flexure did I have trouble from the vessels slipping from the grasp of the catgut, and this was readily controlled by passing a suture through the base of the mesentery. The wound was closed with through-and-through silkworm gut.

Result.—The patient reacted well. No symptoms of peritoneal irritation appeared. With the exception of a colon infection of the wound, apparently soiled by the open ends of the removed bowel, he made a very satisfactory recovery. The button passed on the nineteenth day. Food was given by mouth after the second day.

Examination of Tumor.—Examination of the tumor showed it to be a papilloma about the size of an orange situated on the outer side of the colon opposite the ileocecal valve, with its base undergoing malignant infiltration. An enlarged gland in the mesentery just beneath it was not involved in the malignancy, which speaks for a favorable prognosis in this case. The pathologic report, for which I am indebted to Dr. Mary Halton, showed the tumor to consist of many very light, branching, interlacing strands of connective tissue forming a papillomatous structure. These were all connected by a layer of cylindrical epithelium. In a few places the wall of the bowel had been penetrated, and similar branching connective structures covered with epithelium were found imbedded in altered muscular structure. In many places there were small collections of lymphocytes. The lymph gland showed hyperplasia with some hyperemia, and in places a catarrhal condition of the lymph sinus. No metastasis was seen in the gland.

The small amount of shock in this case, in which the patient was in such a condition as to be susceptible to considerable shock, I attribute to the small quantity of blood lost—every vessel being ligated before being severed—and, secondly, to the avoidance of unnecessary manipulation of the intestines and of undue exposure of them, but a very small amount being exposed at one time.

Few Castor Beans in Kansas.—According to the Kansas State Board of Agriculture, the growing of castor beans in Kansas may shortly cease altogether. The crop of 1904 amounted to only 2,925 bushels. In 1879 the yield was 766,143 bushels.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

103 DEARBORN AVENUE . . . . CHICAGO, ILL.

Cable Address . . . "Medic, Chicago"

Subscription price . . . . . Five dollars per annum in advance

SATURDAY, JANUARY 14, 1905.

THE CHEMISTRY OF THE PROTEID MOLECULE.

There are apparently three chief routes by which chemists may seek to learn the structure of the proteid molecule. First, by decomposing it, collecting the products of decomposition and studying their structure, quantity and possible groupings. Second, by splitting the proteid molecule step by step, so that the main groups can be determined and studied each by itself. Third, by synthesizing the proteid molecule. This, of course, is not to be done at one step, but first the ultimate splitting products are to be synthesized, then these joined to form the higher groups, and so on. Hopeless as this problem may seem to the practical physician, yet there are enormous energies directed toward its solution, and encouraging progress is undoubtedly being made. This, however, by no means implies that the goal is near. Two important centers of work on the structure of the proteid molecule are the laboratories of Emil Fischer in Berlin and of A. Kossel in Heidelberg and from each has recently appeared an article summarizing some of the features of the problem.[1]

By far the greatest amount of work has been directed to the isolation and study of the nitrogenous bodies that are split off when proteids are decomposed, as this is of necessity the fundamental study. Proteids in as pure condition as it is possible to obtain them are decomposed, by the action of acids or alkalies as a rule, instead of the digestive ferments, as with these are introduced other and unknown substances. To the earlier discovered and more generally known bodies, leucin and tyrosin, have been added more and more nitrogenous substances that also are split off from the giant proteid molecule which they go to form. Abderhalden gives the following list: Glycocol, alanin, aminovalerianic acid, leucin, isoleucin, phenylalanin, glutaminic acid, asparaginic acid, cysteïn, alpha-prolin, oxy-alpha-prolin, serin, tyrosin, tryptophan, lysin, aginin and histidin, not to mention other less studied substances. If we consider the possible ways in which such a number of substances, each in itself complex, can be arranged, we may have some insight into the difficulties of the problem and the enormous complexity of the proteid molecule. In addition must be considered the great obstacle due to the fact that at the present time we have no means of obtaining any proteid in a positively pure condition. Kossel, indeed, likens the proteid molecule to a great receptacle, filled with various organic compounds formed through the activities of the living organism. At one time it was believed that the differences between different proteids were chiefly external, and that one could be substituted for another in physiologic processes without important consequences. Now it is known that the proportion of the various components of the molecule may vary greatly. For example, arginin was found to occur in four different proteids in the following proportions—83, 40, 20 and 1.8 per cent. We therefore can not assume that proteid from muscle is of exactly the same effect and value as proteid from milk, egg white or grain. If we compare the composition of casein, the chief proteid supplied to the nursing infant, with the various proteids of the body it forms, it becomes evident that during the processes of digestion and assimilation very considerable changes must occur in the proteid foodstuffs. There is already considerable experimental evidence to support the theory that digestion of proteids in the alimentary tract does not stop with albumoses and peptones, but that they are always split up until they are no longer proteids at all, but relatively simple nitrogenous bodies similar to or identical with those obtained in experimental decomposition of the proteid molecule. These bodies are then combined again to form proteid molecules characteristic of the different tissues or organs of the body. Such a conception of the metabolism of proteid certainly fits best into the differences observed in the structure of the body proteids, as compared with the food proteids. If the food proteids remained as proteids in their course through the body, we could hardly expect them to be so greatly changed as they are in some instances when they form the body proteids.

The great diversity that exists in the composition of different proteid molecules is particularly well shown by the results of studies of the simplest forms of proteids, the protamins. In a series of seven different protamins eleven different nitrogenous bodies were found, and of these but two were present in all the protamins, eleven different nitrogenous bodies were six of the eleven bodies, and one contained but four. If such differences exist among the simplest proteids, what must the differences be among the most complex forms. We can no longer consider all proteids as having a fixed and constant central body, the typical proteid molecule, to which certain groups are joined to form the different varieties of proteids. Rather must we consider the proteid molecules as formed by the grouping of a large number of molecules of organic compounds, each characterized by containing nitrogen in various structural relations to the carbon, hydrogen and oxygen. In some proteids there are particular groups that are not present in others; in each the proportion of the constituent groups is different from that in any other sort of proteid.

1. A. Kossel: Berl. klin. Woch., 1904, vol. xli, 1065. E. Abderhalden: Medizinische Klinik, 1904, vol. I, 12.

ANTITUBERCULOSIS SERUM.

About a year ago, Marmorek made the startling announcement that he had succeeded in preparing a potent antituberculosis serum, but his claims were soon disputed by French practitioners of high standing. The high authority of the assailants of this new remedy caused it for a time to pass out of serious consideration, but it is gradually coming into prominence again as more favorable results from extended trials are being published in different parts of the world. Marmorek is convinced that tuberculin is not the true toxin of the tubercle bacilli which is responsible for the symptoms and for the anatomic lesions of tuberculosis. He believes that it is a bacterial product which, when injected into a tuberculous patient, causes the bacilli in the lesions to secrete toxin and thus to produce a rise in the patient's temperature. That being the case, we could hardly expect beneficial results from treatment with antituberculin serum and they have not been obtained. He has accordingly set out to obtain the true toxin in solution, and apparently has met with some degree of success, and is using this toxin in the immunization of horses. According to his views, the secretion of tuberculin and toxin are two functions that are not found in a culture of tubercle bacilli at the same time. The toxin is produced by the young organisms, while the older ones produce only tuberculin. In order to make the bacilli retain the physical properties of those in young cultures for a long time, and thus to augment their toxicogenic power, he grows them in leucotoxic serum which is prepared by immunizing calves against guinea-pig's leucocytes, by intraperitoneal injections. This leucotoxic serum he found to be a very fair culture medium for the production of toxin, but he was able to improve it somewhat by adding a bouillon extract of liver tissue. When a virulent culture of tubercle bacilli is grown in this serum-liver mixture, toxin is produced in such quantity that from 8 to 10 c.c. of the filtrate kills a guinea-pig of average size in about eight days. When horses are injected with these filtrates there are observed marked local and general disturbances, and their serum gradually acquires antitoxic powers, as is shown by the fact that from 15 to 20 c.c. of it protects a rabbit against an intravenous injection of tubercle bacilli. This dose of tubercle bacilli produces general tuberculosis and death when injected into normal rabbits.

Marmorek used his antituberculosis serum in the treatment of several cases of tuberculous meningitis, but observed only temporary improvement. In some cases of pulmonary tuberculosis the improvement seemed to be very striking. The serum was also used in cases of tuberculous pleuritis and tuberculosis of the spine with very encouraging results. In the former, the transudate was rapidly absorbed and the patient's general condition improved, while in the latter a complete cure was observed. In no case did the treatment appear to do harm. But very unfavorable reports were soon given out by Dieulafoy, Lucas-Championnière and Hallopeau. Recently, however, more favorable results have been reported by a number of French, German, English and Canadian clinicians. Latham,[1] for instance, reports five cases of pulmonary tuberculosis that improved under the serum treatment. Richer[2] reports seven cases, six of which improved and apparently got well, but the time is too short to say whether or not the improvement is permanent. The seventh case was in the last stages of the disease, and not much was expected from the injections. Richer believes, however, that they had an injurious effect, because the patient died thirty-six hours after the second injection. He advises, therefore, that the serum should not be used in the last stages of the disease. Frey[3] reports eight cases that were treated with the serum, six of which showed improvement. The other two cases were not benefited by the treatment, but there were no harmful effects other than slight local disturbances due to the injection of the horse serum. It would seem, therefore, that Marmorek's antituberculosis serum has some antitoxic properties, and as its use is in no way dangerous, it is desirable that it should be given more extended trials, as in this way only can its true value be determined.

The recent work of Friedman[4] on antituberculosis serum also is very interesting and encouraging. He isolated a culture of tubercle bacilli from a tuberculous lung in a turtle, and has shown that this culture is practically harmless for guinea-pigs and calves, but produces in them a fair degree of immunity against human and bovine tuberculosis. He immunized a cow with two injections of this organism, and later inoculated her intravenously with a large dose of bovine tubercle bacilli. This inoculation produced an acute fever, which subsided in a few days, and the cow showed no further signs of sickness. The control animal was very ill, lost weight, and the discharge from its nose contained tubercle bacilli. Three months after the inoculation both cows were killed, and the autopsy revealed general miliary tuberculosis in the control, while only a few healed tubercles were found in the bronchial glands of the immunized animal. Friedman also reports that a cow had acquired tuberculosis spontaneously, but recovered during the process of active immunization with the tubercle bacillus isolated from the turtle. He suggests that equally favorable results might be obtained with this treatment in cases of human tuberculosis. He has used this organism to produce an initial immunity in guinea-pigs and cattle, and was enabled to get a high degree of immunity in these animals later by using human and bovine tubercle bacilli. It must be remembered that it is difficult to produce an initial immunity in these animals if cultures from warm-blooded

1. Lancet, April 9, 1904.
2. Montreal Med. Journal, September, 1904.
3. Münch. med. Wochenschr., Nov. 1, 1904.
4. Deutsch. med. Woch., 1904, vol. xxx, p. 1678.

animals are used at the outset, because the animals usually die from the effect of the inoculations. The immune serum thus prepared protects guinea-pigs against a fatal dose of human or bovine tubercle bacilli, and Friedman hopes in this way to produce an antituberculosis serum of great clinical value.

THE MORTALITY AMONG PHYSICIANS IN 1904.

During 1904 we recorded the deaths of 2,142 physicians in the United States and Canada, a mortality of 17.14 per 1,000. The average age at death was over 60 years. The average length of practice was over 30 years.

These facts are based on a critical analysis of the list of deaths published week by week in THE JOURNAL. In this are now included not only the regular practitioners, but practitioners of the so-called "schools" which are recognized by state boards of medical examiners. Notwithstanding our persistent endeavors to obtain exact information, the statistics regarding these deaths are still incomplete. As illustrating this fact it may be said that in the notices of the deaths no cause was given, or the cause assigned was so obscure or so manifestly incorrect as to be valueless, in 954 cases, the age was not given in 421 instances, and the number of years of practice was omitted in 288 cases. During 1902 we chronicled the deaths of 1,400 regular practioners, during 1903, the deaths of 1,648 physicians, including the homeopaths and eclectics. Thus the mortality rates have been: 1902, 14.74 per 1,000; 1903, 13.73; 1904, 17.14. During 1904 the American Medical Association lost by death 166 members.

Heart disease leads the death causes with 205. These, of course, include the sudden deaths stated to have occurred from "heart failure," etc. Of the deaths due to cardiac disease, 16 were from angina pectoris and 3 from fatty degeneration of the heart. Cerebral hemorrhage, which includes the deaths from "paralysis," "apoplexy," etc., caused 179 deaths. Pneumonia heads the list of clearly defined diseases with 172 deaths, or 7.5 per cent. of the total mortality. Nephritis, including "kidney disease," was responsible for 91 deaths, and uremia caused 16. Tuberculosis is said to have been the cause of 90 deaths, all but 8 of which were from tuberculosis of the lungs. Cancer caused 39 deaths; typhoid fever, 37; septicemia, chiefly from operation wounds, 23; diabetes, 20; gastritis, 16; appendicitis and meningitis, 15 each; bronchitis and insanity, 11 each; hemorrhages and peritonitis, 9 each; asthma, influenza, locomotor ataxia, paresis, rheumatism and gangrene, 6 each; erysipelas, 4, and diphtheria and scarlet fever, 3 each. Of the total deaths, 143 were due to violence of one kind or another. Of these deaths, 95 are chargeable to accidents, 36 to suicide and 12 to homicide. Of the accidents, poison caused 21 deaths; railway accidents, 17; falls, 14; drowning, 10; street-car accidents, 8; runaways, 7, etc. Of the 36 physicians who committed suicide, 14 chose poison as the means; 11, firearms; 3, hemorrhages from cut arteries; 2, asphyxiation by gas; 1, drowning; 1, hanging. In 4 cases the method employed was not stated. During 1904, 12 physicians were murdered. This is 3 more than in 1903, and 1 less than in 1902. Of the 12, 10 died from gunshot wounds, 1 was stabbed, and in 1 case the cause was not stated.

The ages of the physicians who died varied between the limits of 22 and 104 years, the average being about 60 years. The greatest number of deaths—57—occurred at the age of 60; followed by 51 at the age of 70; 45 at the ages of 65 and 68, respectively; 43 at the age of 67; 41 at the ages of 75 and 76, and 40 each at the ages of 72 and 73. Above the age of 70, 596 deaths occurred; above the age of 80, 241 deaths; above the age of 90, 19 deaths; and 3 physicians had passed the age of 100, the oldest on record being 104 years old.

Notable among the dead are the following:

Dr. Hamilton Atchison West, Galveston, Vice-President of the American Medical Association in 1888, for twelve years secretary of the Texas State Medical Association, and an especial authority on malaria, typhoid and yellow fever.

Dr. Edmund Andrews, Chicago, scientist and pioneer in surgery and medical education.

Dr. William Barton Hopkins, Philadelphia, authority on fractures.

Dr. Roberts Bartholow, Philadelphia, whose "Practice of Medicine" and "Therapeutics" are standard works.

Dr. John Milton Duff, Pittsburg, Chairman of the Section on Obstetrics and Diseases of Women, 1894, widely known as a gynecologist, lecturer, teacher, writer, diagnostician and operator.

Dr. Ralph N. Isham, Chicago, one of the oldest and best known surgeons of the West, and one of the founders of the Northwestern University Medical School.

Dr. Frantz H. Coe, Seattle, president of the State Section on Nervous and Mental Diseases in 1904, and one of the most prominent young neurologists of the East.

Dr. N. S. Davis, Sr., Nestor of the American medical profession; one of the founders of the American Medical Association; first editor of THE JOURNAL; pioneer in scientific medicine, and a pillar of strength to the American medical fraternity.

Dr. Frantz H. Coe, Seattle, president of the State Board of Medical Examiners of Washington and of the Washington State Medical Association.

Dr. Samuel Warren Abbott, Boston, secretary of the Massachusetts State Board of Health, and an authority on vital statistics.

Dr. Alfred S. Wolff, for twenty-five years inspector and quarantine officer of the Texas State Health Department at Brownsville; expert on yellow fever.

Dr. James Anthony Dibrell, Little Rock, Vice-President of the American Medical Association in 1901, and twice president of the Arkansas Medical Society.

Dr. Henry Munson Lyman, Chicago, for many years senior dean of Rush Medical College and prominent as a neurologist.

GREATER PNEUMONIA MORTALITY IN FLATS.

The insanitary possibilities of the slum tenement house are sufficiently well known. Those of the average medium-priced flat we have already dilated on to some extent. Now it is reported that the pneumonia mortality is especially high in the high-priced apartment buildings—the tenements of the rich—in New York City. Every phase of excessive urban concentration seems to have its special unhygienic accompaniments.

HONEST MANUFACTURERS IN FAVOR OF THE PURE-FOOD BILL.

According to the Washington *Star*, a number of manufacturers of preserved food have communicated with Dr. Wiley, the chemist of the Department of Agriculture, pledging themselves to discontinue the use of any coloring matters or preservatives condemned by him. This is a favorable sign and a step in the right direction, but it does not lessen the necessity of the passage of the pure-food bill now before the Senate. It is an indication that such an act, if once passed, would be effective; what men can afford to do voluntarily will be still more likely to be done by others—if there is a penalty for not so doing. It shows that honorable manufacturers have no desire to oppose the passage of the act.

THE SYMPTOMATIC VALUE OF CHANGES IN THE NAILS.

Changes in the nails as a result of trophic influences have scarcely received the attention of which they appear to be deserving. It is true that the curvature of tuberculosis, the stunted growth of hemiplegia, the transverse marking after typhoid fever and the longitudinal striation attending myxedema have been described. In addition, the inflammation of syphilis is characteristic, while the nails sometimes suffer in conjunction with diseases of the skin, for example, favus, psoriasis, tinea. There is, therefore, good reason for believing that the nails may at times furnish evidence of the previous existence of disease perhaps not otherwise recognizable. Dr. E. Feer,[1] in a recent communication, calls attention to the formation of a transverse and somewhat curved line in the form of a groove or ridge on the nails, especially on those of the thumbs and the great toes, in the sequence of scarlet fever and measles. In typical cases of scarlet fever the phenomenon makes its appearance at the root of the nail four or five weeks after the onset of the disease, therefore at a time when desquamation is about completed. It becomes most distinct at the end of two months and it disappears at the end of six months, the natural period for the growth of the nail. The line is more prominent in proportion to the thickness of the nail and also to the intensity of the exanthem. The occurrence is referred to interference with the growth of the epithelial germinal layer of the root of the nail. In cases of measles, the line was observed under the same conditions as in cases of scarlet fever, although it was less pronounced and correspondingly less frequent. The presence of the line affords a means of estimating the time that has elapsed from the onset of the disease and it is thought to constitute a valuable diagnostic criterion. It would seem more likely, however, that the condition is not peculiar to any one disease, but it is probably associated with a considerable number, although perhaps most marked in connection with those in which the integument suffers in greatest degree. For this reason it may be more pronounced in cases of scarlet fever than in those presenting a less marked exanthem.

1. Münchener med. Wochenschrift, Oct. 4, 1904, p. 1782.

FATAL HYSTERICAL HEMOPTYSIS.

We are so accustomed to looking on hysteria as a disease attended only with symptoms of functional derangement that we do not always fully appreciate its true seriousness and occasional gravity. While it is now generally admitted to be a distinct morbid entity, its symptomatology is almost uncircumscribed, and its clinical manifestations are by some still thought to be not wholly free from intentional deception. Unfortunately, we are as yet unable to demonstrate the changes, cellular and chemical, that underly the hysterical disturbance, so that much, no doubt, is thus classified that has other origin. Contrariwise the error is not uncommonly made of confounding the symptoms of hysteria and those of organic disease. The hysterical symptom-complex in its protean variation is not rarely long continued, but fortunately the disease does not often terminate fatally. A remarkable case of this character, however, was recently reported by Dr. N. Pende[1] before the *Società Lancisiana* of Rome, death resulting from hemoptysis, for which no adequate organic cause could be discovered. A girl, 17 years old, who had lived with a sister, now dead of pulmonary tuberculosis, attended with repeated hemoptysis, developed in the sequence of emotional disturbance pulmonary hemorrhage, in conjunction with cough, pains in the chest and fever. On examination, distinct hysterical stigmata were discovered, as well as signs of congestion at the apices of the lungs. Neither elastic fibers nor tubercle bacilli were found in the sputum, inoculation of rabbits with which also yielded negative results. There was, however, a reaction on the part of the patient to tuberculin. The symptoms were considered hysterical, and fever, cough and hemoptysis yielded to suggestive treatment. The patient was dismissed as cured, but the hemoptysis recurred after several days and death followed in the course of a few hours. No anatomic alterations could be discovered on postmortem examination either in the lungs or in other organs that could be considered capable of causing the hemoptysis. The phenomenon accordingly is attributed to vasomotor influences.

1. Münchener med. Wochenschrift, Oct. 25, 1904, p. 1938.

TRUTH AND POETRY CONCERNING URIC ACID.

I.

In the slow but steady advance which medicine is making, new facts are often established for a long time before they meet with general acceptance, and old theories have had their foundations washed out from under them years or decades before their fallacies have become generally recognized by the profession. It is easy to be too severe in criticizing the inertia of medical men in this respect, for the very conservatism which accounts for the facts mentioned has gone far to protect our guild from the too speedy welcoming of immature conceptions, on the one hand, and from the too easy rejection, on the other, of theories which, under assault by partisan or ignorant critics, prove ultimately to be sound. It is not an unwillingness to accept new truth nor a desire stubbornly to retain error which is characteristic of our profession. On the contrary, it is rather the fear of being duped concerning the new or of being cheated of old and well-tried good which animates it and determines its action or inaction.

Now that the media of communication among physicians have been so marvelously multiplied, it may be urged that the excuse for a continuance in ignorance regarding medical facts and theories is not what it formerly was. Medical journals are, it is true, more widely read than ever before by the profession; the nations, through the activity of collective reviews and international periodicals, have been brought closer together than at any previous time; were the increased information brought to medical readers always reliable, the profession's knowledge ought to be advanced by leaps and bounds. Unfortunately, at a time when everybody writes, the views which are expressed in the various medical journals are so contradictory that the mind without a special scientific training often becomes confused, knows not what to believe, and naturally settles down on the convictions which suit its own inclination best or on statements which have been gained from some authority for which it has a particular predilection. The preliminary training which the average medical man has obtained hitherto in subjects like chemistry, physics and biology has been totally inadequate, when discussions involving disputes in these domains are brought to his attention, to permit him to form sound judgments concerning them. A further difficulty for the medical man in practice lies in the inequality of the articles which are admitted to the pages of even those medical journals which he has been taught to regard as the best. So disparate are the views expressed in different articles in the same number of a given journal that the average medical mind often turns from the reading of them with a feeling of uncertainty, if not of disgust.

It is one of the objects of THE JOURNAL in its editorial pages to present, from time to time, as accurately as it can, synopses of the real advances which take place in medical research. It is and has been its endeavor to promulgate as firm convictions in these columns only those views which receive the support of what it regards as the soundest medical judgment of the time. The wisest may err, and there can be no doubt that, even when the greatest care is exercised, an erroneous opinion may occasionally be supported or a faulty judgment passed. Should this occur, THE JOURNAL would be the first to regret it, and it would seize the earliest opportunity to correct it. Its readers may rest assured, however, that no pains are spared to prevent the expression of opinions other than those which represent the sanest medical thought of the day.

One of the subjects in which the growth of our conceptions has been extremely slow, but about which, to-day, our real knowledge far outruns the general professional recognition of it, is that which has to do with the origin, fate and significance of uric acid in the body. THE JOURNAL has, on several occasions, called attention to progress in knowledge in this field; it has warned against many of the fallacies which persist, and it has urged the profession to revise views which, though long taught, have been proved to be without firm foundation. The false ideas concerning the mode of formation of uric acid in the body, its decomposition and its pathologic significance have become so deeply rooted, not only in the professional mind, but to a certain extent in the mind of the laity, that it is unusually difficult to eradicate them. The perpetuation of erroneous ideas has been helped no little by facile publications like those of Haig, wherein, doubtless with good intentions and assuredly with great enthusiasm, doctrines have been advocated which are based partly on faulty or misinterpreted observations of others, partly on unskilled and non-scientific personal experiments. When such ideas happen to harmonize with the interests of an unbridled commercialism[1] which floods the country with highly colored and sensational reports of marvelous cures by so-called antilithics and uric-acid solvents, it is easy to understand how the attempt may be made by those who have vested interests to prolong the drowsiness of the profession and the laity, and how any effort made to awaken the somnolent may excite antagonism.

A considerable body of definite facts has now been established concerning uric acid. We really know a great deal about its origin, the transformations which it undergoes and the way it is excreted. We are be-

1. Since this was written THE JOURNAL has received a letter from a firm which has been advertising a "uric-acid solvent." This letter is a reply to a circular sent out by the advertising department: it bears so directly on the point mentioned that we quote a part of it: "Should we place an 'ad' with you, it would be to exploit a proprietary preparation for the relief and cure of the uric acid diathesis. It has been made apparent to us that it is the avowed policy of THE JOURNAL to discourage the use of all proprietary preparations, and under date of August 20 THE JOURNAL in an editorial made a very sarcastic, if not unethical, attack on the uric acid diathesis. We concede to any physician the right to his personal opinion on this subject, and to any journal the right to publish any views which may be held by its editors, but when such views tend to discourage the profession in the use of uric acid solvents and eliminants, it certainly impairs the value of its advertising pages as a medium through which the manufacturer of a uric acid remedy may reach the profession. This is an additional reason why we now decline to use THE JOURNAL through which to advertise ————."

ginning to know something of its significance, though far less, it must be admitted, than many people imagine. It is our intention to review, thoroughly though succinctly, the mass of work which has been done on the subject. We shall try to sift out the wheat from the chaff, and shall make an effort to distinguish what is the truth from what is mere poetry in this matter. In our next issue we shall begin with a review of the doctrines which have been held regarding the formation of uric acid in the body; in succeeding numbers of THE JOURNAL we purpose taking up the normal fate of uric acid in the tissues, the facts bearing on the localization of the processes of uric-acid formation and decomposition, the chemical and physical properties of uric acid and urates, including the conditions of solubility and precipitation, and, finally, the relation of uric acid to pathologic processes.

The literature on the subject is immense. One has only to glance at the collective bibliographies of the subject which have been prepared, for example, that of Wiener, to realize the magnitude of the task which a careful historical review necessitates. It would be impracticable as well as undesirable to marshal all the authorities in the review of the subject which we intend to make for our readers; it will suffice if we point out the most important steps which have been taken as knowledge of the subject has advanced. We believe that such a historical presentation, though it will be full of surprises for many, is the best means of making clear to the profession at large the true status of the questions at issue.

Medical News.

DISTRICT OF COLUMBIA.

Health of District.—The report of the health officer for the week ended December 31 shows the total deaths to have been 122. There were 119 births and 13 still births. At the close of the week there were under treatment 45 cases of diphtheria, 39 of scarlet fever, 172 of typhoid fever and one of smallpox.

Puerperal Arthritis.—At the meeting of the Washington Obstetrical and Gynecological Society, held on January 6, Dr. Edward E. Morse read an essay on puerperal arthritis. He took the position that all cases of puerperal arthritis are caused by sepsis and that the so-called puerperal rheumatism is puerperal sepsis.

Municipal Hospital.—The district government is about to build a municipal hospital at a cost of $250,000. The plans presented in competition by Frank Miles Day of Philadelphia were accepted. Congress has been asked to appropriate $150,000 additional to accommodate several hundred tuberculous patients who are barred from other hospitals.

ILLINOIS.

Fire in Hospital.—A fire which broke out in the hospital of the Illinois State Reformatory, Pontiac, caused damage estimated at $3,000. Of the 40 patients all were taken out safely.

State Teachers and Tuberculosis.—At the meeting of the State Teachers' Association at Springfield great interest was manifested in the exhibits of the State Board of Health showing the prevalence of tuberculosis in the state and its mortality as compared with that of other diseases. The association unanimously voted to indorse the efforts of the State Board of Health and to assist in the supervision of consumption by the dissemination of knowledge concerning the disease, the prevention and cure.

Personal.—Dr. H. C. Howard, Champaign, has gone to Florida for the winter.——Dr. and Mrs. Harry H. Whitten, Peoria, have returned from Europe.——Dr. William Engelbach, Arenzville, has returned from Europe.—Dr. George A. Clotfelter, mayor of Hillsboro, has been appointed local surgeon for the Big Four System.——Dr. Paul G. Manley, Mount Carmel, while driving across a railway track, was struck by a train, his buggy was demolished, but he escaped with severe contusions.——Dr. Milton Jay, Chicago, has been re-elected president of the Association of Chicago & Eastern Illinois Railway Surgeons.

Chicago.

Smallpox.—During the week ended January 7, 18 cases of smallpox were sent to the isolation hospital. Of these 12 had never been vaccinated and 6 had old scars.

Deaths by Violence Decreased.—During 1904 there were 542 less deaths from violence than in 1903. There were 59 fewer suicides, 7 fewer murders and only 8 more railroad deaths and 6 more street-car fatalities than in 1903.

Tuberculosis in Office Buildings.—Dr. W. A. Evans in a talk on consumption before the union of janitors and window-washers, said that ventilation of office buildings was not properly secured and that unventilated rooms furnished ideal breeding places for the germ of the disease. He urged the abolition of dry sweeping.

Deaths of the Week.—During the week ended January 7 there were 542 deaths, equivalent to an annual mortality of 14.19 per 1,000. All the important causes of death show decreases, the most marked in consumption—from 68 to 41, and the total from all causes is nearly one-fifth (19.7 per cent.) lower than that of the week before.

MARYLAND.

Baltimore.

Dinner to Dr. Bosley.—The employes of the health department entertained Dr. James Bosley, health commissioner, with a banquet, December 27.

Personal.—Dr. Thomas C. Bussey has been elected physician to the almshouse, and Dr. J. Royston Green, physician to the county jail of Baltimore County.——Drs. Randolph Winslow and J. Mason Hundley paid a visit to Dr. Mayo's Hospital, Rochester, Minn., last week, returning January 1.

Mandamus Proceedings Dismissed.—Dr. Campbell F. Flautt instituted mandamus proceedings some time ago in the Court of Common Pleas to compel the State Board of Examiners of the Medical and Chirurgical Faculty to issue him a license to practice medicine in Maryland. The mandamus was dismissed by Judge Stockbridge December 20.

Concerning Dr. Osler.—The *Maryland Medical Journal* has issued a booklet containing a portrait of Dr. Osler and comments from different sources on his resignation.——The committee on the Osler testimonial has appointed a subcommittee of 50 to canvass the profession of the city, each one seeing 10 doctors.——The twenty-ninth anniversary of the foundation of the Johns Hopkins University will be celebrated February 22. Dr. William Osler will deliver the principal address, probably his last public address before he leaves America.

MASSACHUSETTS.

Leper Colony.—The Massachusetts State Board of Charities has bought land in Harwich, a town on Cape Cod, for the establishment of a "leper colony" to accommodate the three patients now within the limits of the state. Very vigorous protests are being made from all the surrounding towns.

Sanitation of Cities.—Prof. William J. Sedgwick, professor of biology and lecturer on sanitary science and public health in the Massachusetts Institute of Technology, Boston, will give a course of ten free public lectures before the Lowell Institute on Monday and Thursday evenings, beginning January 9, on "The Sanitation of Cities."

Made a Test Case.—In order that the case might go to the Supreme Court, the judge in the Superior Civil Court at Dedham ordered a formal verdict for two children who brought suit for $10,000 each against the town of Hyde Park because they were denied school privileges, owing to a failure to be vaccinated. One hundred and fifty dollars was allowed the girl and $50 to her brother.

Home for Crippled Children.—The last legislature voted $300,000 for the purpose of building and maintaining a home for crippled and deformed children. The board appointed by

the governor to have charge are Drs. Edward H. Bradford, William A. Morrison of Boston, and Messrs. William Endicott, Jr., Leonard W. Ross and A. S. Pinkerton. The board organized with Dr. Bradford as chairman.

Milk Examination.—Examinations of Boston's milk supply made by the Board of Health during last summer showed that over 46 per cent. of the samples taken were warmer than the legal limit of 50 F.; 27.5 per cent. of the samples had more bacteria than the law allows, 500,000 to the c.c. Of these 9.75 per cent. had betwen 500,000 and 1,000,000, 12,75 per cent. between 1,000,000 and 5,000,000, and 5 per cent. more than 5,000,000.

The Question of Cancer.—The statement that only San Francisco exceeds Boston in its total annual deaths from cancer, and that while the former had in 1903, 103 deaths per 100,000 of population the latter had 85, is explained by the Board of Health on the basis that more careful mortality records are kept in Boston than in many other large cities. They maintain that the disease is not more prevalent than elsewhere. It is said that the report of the cancer investigation carried on at Harvard Medical School by Dr. E. H. Nichols for the past two years under the Crofts bequest of $100,000, will soon be published and will show that no etiologic factor except heredity is well established.

NEW YORK.

Fire in State Hospital.—Fire was discovered in ward 2 of the Middleton State Hospital. After flooding the floors the fire was subdued.

Liberal Gift.—The Syracuse Hospital of the Good Shepherd received a New Years gift of $50,000 from William B. Cogswell, who has previously contributed large sums to the support of the institution.

Personal.—Dr. Mary Clayton has resigned from the staff of the St. Lawrence State Hospital to accept the position of woman physician at the Craig Colony for Epileptics, Sonyea. ——Dr. Charles W. Clendenan has been appointed city physician of North Tonawanda.

Crippled Children's Hospital.—The New York State Hospital for the Care of Deformed and Crippled Children, Tarrytown, will move about April 1 to its new site at West Haverstraw, for which $50,000 was appropriated by the last legislature. During the year ended Sept. 30, 1904, 17 new patients were admitted, making a total of 42 patients treated during the year.

For an Inebriates' Home.—A bill has been prepared which will be presented to the legislature for the establishment in New York City of an inebriates' home, where there will be free treatment of alcoholism and drug habits. The home as planned will be built from money received from the excise law. It is estimated that about 1,000 patients would be found for such a home at once. The management would be under the mayor with a board of medical advisors.

The Governor's Message.—In his annual message Governor-elect Higgins says concerning the insane:

> The management of the state hospitals for the insane, fourteen in number, with a total number of patients on Oct. 1, 1904, of 25,019, was completely centralized by legislation of 1902 abolishing the boards of managers of the various hospitals and leaving with the commission on lunacy complete jurisdiction, both as to financial control and internal administration. The advantages of centralized control of the financial operation of the hospitals are evident. It is of the utmost importance, however, that this great system of hospitals, involving the expenditure of so large a sum of money annually, and the care of so many thousands of peculiarly unfortunate and defenseless persons, should rest on a broad basis of public interest and public confidence and should retain the cooperation of philanthropic citizens throughout the state. In my opinion this can best be secured by leaving the control of all financial matters, as at present, in the hands of the commission, and by providing for each hospital a board of managers, in general charge, through the superintendent, of the internal affairs of the hospital.

He also favors the enlargement of the present hospital and the establishment of a new state hospital. He also advocates a separate building in each state hospital for the treatment of acute insanity. He protests against the commitment as dependent insane of those who are not properly state charges and who have property or relatives legally chargeable for their support and maintenance. He recommends that before any insane person is permanently received in a state hospital as a state charge the question be judicially investigated and determined whether such person is a pauper without relatives chargeable with his support and able to contribute thereto. He also recommends increased accommodations for the feeble-minded and that all sources of public water supplies be examined and analyzed at frequent intervals and that the private water supply of public resorts should also be subject to state analysis and the results should be made public. A system of state inspection of domestic water supplies to be maintained at the cost of the municipalities, corporations and private owners is recommended. A state water storage commission, having also for its object the supply of water to the cities, might be of great service. He further states:

> The court of appeals has finally upheld the constitutionality of the Tenement House Law of 1901, which has been contested by the courts. This measure is one not only of charity but also of justice; not only for the benefit of the poorest families but also for the general welfare of the community. For its enactment and enforcement my predecessor (Governor Odell) is entitled to the highest credit. The law is now definitely established.

New York City.

Crusade Against Voodoo.—Through its counsel the New York State Medical Association has begun a crusade against voodoo doctors of the East Side of New York City.

Contagious Diseases.—There were reported to the sanitary bureau for the week ended Dec. 31, 1904, 434 cases of tuberculosis, with 134 deaths; 302 cases of diphtheria, with 45 deaths; 206 cases of scarlet fever, with 16 deaths; 126 cases of measles, with 6 deaths; 52 cases of typhoid, with 7 deaths; 87 cases of varicella, and 18 deaths from cerebrospinal meningitis.

Tenement House Sanitation.—The tenement house commissioner, in his annual report to the mayor, says that of 48 blocks in the Thirteenth Ward there are only seven in which there were no deaths from tuberculosis in 1904. Of 1,100 sanitary inspections made, from January 1 to October 1, the conditions discovered led the department to file 684 violations against tenement houses in this ward.

Death Rate Increased.—The death rate per 1,000 in Greater New York for 1904 was 20.32, an increase of over 2 per cent. over 1903. There was an alarming increase in the number of deaths from pneumonia and bronchitis, deaths from this cause numbering 14,518. There was also an epidemic of cerebrospinal meningitis which killed 1,211, while in 1903 there were only 271 deaths from this disease. During the year there were 55,195 violent deaths.

Bellevue Hospital Overcrowded.—Records show that the total number of admissions to Bellevue in 1904 was 28,925, the highest number the hospital has ever received. This is nearly 5,000 more patients than were received five years ago with the same accommodations. The recent order compelling the physical examination of patients has entailed an increase in the house staff from 43 to 48. The additional influx has compelled many to sleep on mattresses on the floors and the accommodations for the house staff have been proportionately reduced.

Buffalo.

Hospital Opened.—Mercy Hospital has opened its doors for the reception of patients.

Measles Epidemic.—The measles epidemic continues at Buffalo. In some school houses the attendance of classes is reduced 50 per cent. No school has entirely escaped the epidemic. There were 1,200 cases of measles reported last month and the average number reported each day to the Health Department is 40.

School Inspection.—Dr. M. Elizabeth Schugens recently read a paper entitled "Medical Inspection of Schools" before the Women Teachers' Association. She embedied in her paper a report of various large cities where medical inspectors are employed to visit schools, such as Boston, New York, Philadelphia and other cities. In the public schools of these cities the medical inspector visits the primary grades every morning and examines children who have been pointed out by the teachers as unfit for class work. If the medical inspector finds the child ill, it is sent home, given a sealed envelope containing a letter to the parents, stating the child's ailments and recommending that the family physician be called. Often children go to school in the first stages of an infectious disease. Here medical inspection is a safe barrier, and also to determine the safe time for a child convalescing from contagious disease to return to school. Boston was the first city to inaugurate the medical inspection of schools and Buffalo will, it is hoped, soon follow this excellent example and institute regular medical school inspection.

OHIO.

New Hospital at Lima.—The commission chosen to select a site for the proposed new state hospital for the insane unani-

mously selected Lima after a two days' session. The Dunn farm was the site chosen, about one mile north of the city and consisting of 620 acres.

Welch in Cincinnati.—Dr. William H. Welch of Johns Hopkins University represented his college at the inauguration exercises held in Cincinnati in honor of Charles W. Dabney, president of the Cincinnati University. During his visit Dr. Welch addressed the students at the Cincinnati Hospital. A general reception was given in his honor by Dr. Joseph Ransohoff.

Society Election.—At the annual meeting of the Marion County Medical Society the following officers were elected: President, Dr. Charles E. Sawyer; vice-president, Dr. Lewis D. Hamilton; secretary, Dr. Dana O. Weeks; treasurer, Dr. Clyde R. McKinniss; censors, Drs. Joel B. Taylor and C. T. Wiant, and delegates to the Ohio State Medical Association, Drs. Robert C. M. Lewis and A. Melville Crane, all of Marion.

City Will Investigate.—The ordinance introduced several weeks ago providing for the expenditure of $2,000 to employ agents to investigate the books and management of the Cincinnati Hospital, has, on recommendation of the finance committee, been indefinitely postponed. In its place a resolution was adopted authorizing the expert accountants employed in the office of the city auditor to make the investigation.

Cincinnati Hospital at Avondale.—It has been finally decided by the Board of Public Service by a vote of 4 to 1 that the new Cincinnati Hospital will be erected at Avondale, a suburb of the city. The hospital grounds will occupy about 25 acres, away from the noise and smoke of the city. The pavilion plan, two or three-story buildings, has been decided on as the most feasible, and the entire structure is expected to accommodate about 750 patients, thus providing sufficient facilities for a number of years to come. There will, of course, be emergency hospitals situated in the city proper. The estimated cost is more than $1,000,000. Architects have already begun the plans.

PENNSYLVANIA.

Third Donation.—The sum of $500 has been donated to the West Chester Hospital by a "friend." This is the third successive year this friend has thus remembered the institution.

Personal.—Dr. Alford H. Read, Norristown, has been appointed coroner's physician.——Dr. Albert E. Osborne, West Chester, has moved to California, where he will resume medical practice.——Dr. Charles B. Noecker has been appointed surgeon in the police department of Scranton.

Philadelphia.

Physician Fined.—Dr. Charles M. Burk, who was arrested by the Board of Health for delaying properly to report a case of smallpox, was fined $5 in the magistrate's court.

Children's Hospital Report.—The Children's Hospital of the Mary J. Drexel Home treated 573 patients during the year; of these 340 were treated free. There were 381 surgical operations, 11,223 nursing cases and 10,446 clinic cases. Out of 65 cases of typhoid fever one patient died, and out of 71 cases of appendicitis operated on, none died. The expenditures of the institution during the year were $58,294.34.

Personal.—Dr. Wharton Sinkler was elected a member of the board of trustees of the University of Pennsylvania, to take the place of Dr. W. Howard Furness, resigned.——Dr. Sinkler has also been elected a member of the board of managers of the Episcopal Hospital.——Dr. Alfred Gordon has been appointed by Dr. Edward Martin, director of the health bureau, examiner of the insane in the Philadelphia Hospital.

Work in Hospitals.—During December the following patients were treated in the different hospitals of the city: Three hundred and nine cases were admitted to the wards of the Pennsylvania Hospital, and 1,600 to the receiving ward; there were 999 new patients treated in the dispensary, and 3,552 return visits were made. The Howard Hospital admitted 31 patients, treated 152 accident cases, and 514 new cases in the dispensary. The Charity Hospital treated 647 patients.

War on Tuberculosis.—Dr. Alexander C. Abbott, chief of the Bureau of Health, has issued a circular letter asking the physicians of the city to co-operate with the health bureau by reporting all cases of tuberculosis which come to their knowledge. He explains that tuberculosis is not regarded, however, with the same concern as are the acute transmissible diseases, and is, therefore, not subjected to the same official supervision. Nevertheless, for the protection of the public health, it is essential that cases of tuberculosis be kept under sanitary supervision. For the information of the health board appropriate blanks will be furnished the physicians for properly reporting this class of cases.

Busy Year for Coroner.—A summary of the work done by the coroner's staff during the year just closed shows that 3,467 inquests were held. During the year 1903, 3,357 were held, indicating an increase of 110. There were 4,969 cases investigated and 703 postmortems made. The largest number of deaths resulted from railroad accidents, 204 being attributed to that cause. The deaths classified with the fatal casualties aggregated 1,065. There were 209 suicides and 43 homicides. Heart disease was responsible for 148 deaths; burns and scalds, 148; drowning, 99; gunshot wounds, 52; asphyxiation, 87; malpractice, 38; poisoning, 21; infanticide, 2; alcoholism, 25; exposure, 3; heatstroke, 2; lightning, 1; electric shock, 6, and starvation, 1.

Health Report.—The total number of deaths for the week reached 478, as compared with 656 for the corresponding period of last year, and 497 during last week. The deaths from pneumonia during the week showed a decrease, 62 being reported, as compared with 69 last week and 89 in the preceding week. Typhoid fever is on the increase, 99 cases being reported, an increase of 26 over the preceding seven days. There were 256 cases of contagious disease reported, with 25 deaths, as compared with 223 cases and 21 deaths for the week previous. There were 8 deaths from typhoid fever, 14 from diphtheria, 64 from tuberculosis, 22 from cancer, 19 from apoplexy, 56 from heart disease, 62 from pneumonia, 19 from enteritis and 36 from Bright's disease.

Pulmonary Diseases in 1904.—Pneumonia heads the list of fatal maladies in this city, with consumption a close second. The total number of deaths from pneumonia during 1904 aggregated 3,360, as compared with 3,107 from consumption. Much of the pneumonia is attributed to the cold, damp trolley cars. Notwithstanding that death has been frequent from pneumonia and consumption, the health of the city is regarded good. The total number of deaths during the year reached 25,972, which is an increase of 25 over 1903. The death rate per 1,000 inhabitants for 1904 was 18.44, as compared with 18.82 in 1903. The deaths from pneumonia in 1904 show an increase of 180 over 1903, and the total reached 3,180. The deaths from consumption in 1904 exceed those of 1903 by 54. Deaths from typhoid fever in 1904 reached 744, which is 213 less than during 1903, while the deaths from smallpox last year were 229, a decrease of 49 from the figures of 1903.

College of Physicians Elects Officers.—At the regular meeting of the College of Physicians, January 5, practically all the former officers were re-elected for the coming year, as follows: President, Dr. Arthur V. Meigs; vice-president, Dr. James Tyson; censors, Drs. Richard A. Cleeman, S. Weir Mitchell, Horace Y. Evans and Louis Starr; secretary, Dr. Thomas R. Neilson; treasurer, Dr. Richard H. Harte; honorary librarian, Dr. Frederick P. Henry; councilors, Drs. DeForest Willard and John H. Gibbon; committee on publication, Drs. Gwilyn G. Davis, Thompson S. Westcott and William Zentmayer; library committee, Drs. George C. Harlan, Francis X. Dercum, Charles A. Oliver, William J. Taylor and S. Weir Mitchell; committee on Mutter Museum, Drs. John H. Brinton, George McClellan and J. Alison Scott; hall committee, Drs. John K. Mitchell, Thomas H. Fenton, B. Alexander Randall, E. Hollingsworth Siter and Aloysius O. J. Kelly; committee on directory for nurses, Drs. Wharton Sinkler, James C. Wilson and James V. Ingham.

GENERAL.

Yellow Fever in Panama.—Six cases of yellow fever are reported in the Panama canal district. The disease is endemic in this vicinity, but no cases have occurred recently until these now reported.

Election of American Physiological Society.—At the annual meeting in the physiological laboratories of Jefferson Medical College, Philadelphia, December 28, the following officers were elected: President, Dr. William H. Howell, Baltimore; secretary, Dr. Lafayette Mendel of Yale; treasurer, Dr. W. D. Cannon of Harvard. The members of the society were entertained at luncheon after the meeting by Dr. Henry C. Chapman.

Fake Drug Concerns.—Dr. William H. Wiley, head of the United States Bureau of Chemistry, in addressing the Society of Chemical Industry, New York, said that there were in the United States no fewer than 5,000 fraudulent drug manufacturers who should be put out of business. During the past year

he said fifty such firms had been put out of business for selling or for advertising "fake" medicines. His own name had been used without his permission by one firm in an endorsement of its goods. When he protested he was told to mind his own business. However, he forced the firm to refrain from using his name.

CANADA.

Montreal Hospitals Filled.—Montreal is suffering from an abnormal amount of sickness at the present time. The various hospitals of the city have been overtaxed and there is no immediate indication that relief will come. In the Montreal General Hospital there is room for 202 patients, but 210 have been in residence. The number of patients in the institution on Dec. 31, 1904, was 191.

Contagious Diseases in Toronto.—During December, 1904, there were 227 cases of diphtheria in Toronto, as against 173 cases in the corresponding month of 1903; of scarlet fever there were 50 cases, as against 23 a year ago; of typhoid fever 14, as against 16 a year ago. The total number of cases reported during the year were as follows: Diphtheria, 1,360; scarlet fever, 318; typhoid, 133, as against 1,103, 699 and 156 for 1903. The deaths in December, 1904, were: Diphtheria, 17; scarlet fever, 1; typhoid fever, 6. The total number of deaths in 1904 from diphtheria were 125; scarlet fever 12; typhoid fever, 41; smallpox, 2, as against 136 for diphtheria, 100 for scarlet fever, 41 for typhoid fever and one for smallpox in 1903. The death rate from scarlet fever in 1904 was the lowest in six years.

FOREIGN.

Million to Charity.—Lord Mount Stephen has given over $1,000,000 to the King's Hospital Fund in England.

City Sanitarian.—The municipal authorities of Stettin, Germany, have installed a city "hygieniker," with a salary of nearly $2,000.

New Hospital in Rome.—The cornerstone has been laid of a hospital for the English-speaking residents of Rome. It is located on the Coelian Hill and has been endowed by contributions from many Americans and Englishmen.

Proprietary Medicines in New Zealand.—A bill has been brought before the New Zealand parliament to make it compulsory that all patent medicines sold in New Zealand place before the public the composition of the remedy sold. This will affect a great many from the United States.

Trachoma in London.—It is reported that so great is the rush of Russian Jews arriving in London suffering from trachoma, that the hospitals are turning them away. A large number of these persons are en route to America, while others have been rejected by the United States immigrant inspectors and having been returned by the steamship companies, are stranded in the United Kingdom instead of being sent back to Russia.

An Ophthalmologist at the Seat of War.—A. Moltrecht writes from the front during October that typhoid cases are numerous notwithstanding the almost wintry weather. He has encountered a number of interesting bullet wounds of the eye, among them several in which the bullet traversed the orbit, nose and mouth, or else passed out along the roof of the orbit, without injuring the eyeball. In several cases the bullet had injured the optic nerve, but the subject recovered without permanent functional disturbances, which is certainly, he adds, the *ne plus ultra* of a "humane" bullet.

American Hospital in Korea.—A new hospital building has been dedicated in Seoul, Korea, to be conducted under the direction of the Presbyterian Board of Foreign Missions. The first operation was performed in the new building on Oct. 4, 1904, and was for the extraction of cataract, one of the workers characterizing it as an especially appropriate one, that the first important work of a new missionary hospital should be an operation for "letting in the light." The entire cost of the building was defrayed by L. H. Severance of Cleveland, Ohio, and the hospital will be known as the Severance Memorial Hospital.

Joke Taken in Earnest.—A German daily paper has republished one of the satires from the burlesque number of the *Münchener med. Wochenschrift*, taking it in earnest or pretending to do so, and commenting drastically on it. The satire purported to be an ad. from a medical graduate seeking a place as substitute for a physician where he would have an "opportunity to learn something of obstetrics, of which at present he has not the faintest glimmer of knowledge." The daily paper cites the ad. as a "picture of the times" and comments on the audacity of the fledgling physician in thus offering his services to experiment on human beings as if they were laboratory rabbits. The editor of the lay paper in question is chairman of the local sickness-insurance companies (Krankenkassen), at Leipsic, where there has been, and is still, considerable friction between the Kassen and their medical officers.

Congress of Hygiene of Habitations.—The United States Public Health and Marine-Hospital reports state that the International Congress of the Hygiene of Habitations was inaugurated at Paris, November 3, in the amphitheater of the school of medicine, being the first reunion for the purpose of technical engineers, hygienists, and representatives of the great cities. At the opening meeting the French minister of public instruction, M. Chaumie, presided and, in his address to the congress, called attention to the special importance of the regulation of dwelling places as a protection against contagious diseases. Senator Strauss reviewed the means at the disposal of engineers and architects based on the medical knowledge gained in the campaign against tuberculosis, a malady notably perpetuated and diffused by faulty construction of houses. He affirmed that it is to-day inexcusable for a government or municipality to fail to interest itself in the question of tuberculosis, a disease whose principal foci of contagion are found in insalubrious homes. Representatives of numerous cities, especially prominent being the envoys of Berlin and Prague, addressed the congress. A section of the congress devoted its attention to floating habitations, namely, ships of every kind.

Recent Decisions of the Prussian Medical Court of Honor.—One of the decisions was in respect to the sale of an ophthalmic practice. The court decreed that it is incompatible with a profession carrying with it such responsibility and founded on a basis of scientific training to have a medical practice transferred from one physician to another for a pecuniary consideration. Another decision was in the case of a Berlin physician who had an office at his residence in a suburb and another office in the city. The regulations state that a physician can not have an office in two places already provided with other physicians. This regulation was meant for small towns, and it was decided that it did not apply to an office in a city with a suburban home. In the present case the physician was intending to give up one office as soon as his practice in the other would warrant it. Another physician was fined for professional association with a charlatan, and another for writing a letter to a colleague in which he referred to a third physician as having made a blunder in diagnosing, and commented on his nervous instability and morbid ideas, concluding with the statement that the writer could no longer have any respect for him as a colleague. The court further decided in another case to impose a fine on a physician for carelessly signing a certificate. He failed to state that he had no personal knowledge of the preceding circumstances, but merely reported them from hearsay. A certificate made out in this way is incompatible with the honor of the profession, and the physician was fined the costs.

Medical Prizes Awarded at Paris.—The particulars of the prizes offered by the Académie de Médecine and Académie des Sciences at Paris have been given in full in these columns from year to year. Many thousands of dollars are thus distributed annually, the competition for nearly all the prizes being open to the world. Full details were given in THE JOURNAL Jan. 24, 1903. The reports show that few physicians from outside France compete for the medical prizes. The only non-Frenchmen among the recipients this year were Christiani of Geneva, whose work on thyroid grafting received a prize; Odier of Geneva; A. Raffray of Mauritius received the Godard prize for a work on neurology, and Muskens of Amsterdam received honorable mention in connection with another. The great Audiffred prize offered for the discovery of a sovereign remedy for tuberculosis is an endowed annual income of $4,800. The income was divided among several recipients this year, including A. Delille for his research on the toxins of the tubercle bacillus in tuberculous meningitis and in tuberculosis of the nerve centers; and Nattan-Larrier for his work on the cultivation of the tubercle bacillus by injecting suspicious fluids into the nipples of guinea-pigs suckling young. The bacilli colonize readily in the secretion where they can be easily detected, while the inoculation induces a tuberculous mammitis. Two prizes were awarded to A. Monprofit of Angers, vice-president of the Société de Chirurgie, for a work on surgical affections of the ovaries and tubes, which also received a prize from the other Académie. No articles were re-

ceived in competition for five of the prizes, offered for the best work on cirrhosis of the liver, arteriosclerosis and nervous and malignant affections.

Student Life in Japan.—The *Journal de Méd. de Paris* quotes a letter from Professor Revon, who taught for years at Tokio, in which he states that the distinguishing characteristic of Japanese students is that they study hard and are very eager to learn. When the lecture is over there is always a group appealing for further light on certain statements. After the professor has left the room the entire body of students gather round this bolder group and take notes of what they have learned. He adds: "During seven years of teaching in Japan, my only solicitude was the excessive amount of study done by some of my pupils. I tried in vain to curb their zeal; one of them became insane and several died. At the funeral of one of them, one of their mates advanced to the grave and exclaimed: 'Thou hast died from the sacred love of science; we will try to imitate thee!' A student a few years ago, by some undeserved mischance, failed to pass his examination. He came to bid farewell to his teachers, on the point of committing suicidal autolaparotomy. The faculty hastily assembled and made out his diploma at once. The young men study so hard that they grow prematurely old, with spectacles on nose, candidates for consumption. The medical course requires from thirteen to fourteen years of study before the final license to practice freely is obtained, instead of the five or six years required in western civilization. The relations between professors and pupils are peculiarly intimate and affectionate. From childhood the maxim is impressed on them: 'Your father and mother are like the earth and the sky; the ruler of the state is like the moon; your teacher, like the sun.' Another familiar proverb may be translated: 'Education surpasses birth,' that is, education is worth more than ancestral lineage and wealth."

Campaign Against Malaria in Italy.—In view of the sanitary efforts that will be necessary to contend with malaria in Panama, a special interest from an American standpoint attaches to the campaign that is being vigorously pushed against this disease in the Roman Campagna, a section once thickly peopled, the site of prosperous cities, but now, owing to malaria, a desert waste, not more than one-tenth of which is under cultivation. The public health reports state that the first inroads of malaria in the once flourishing Campagna were attributed to the neglect of the cultivation of land incident to changed social conditions brought about by the decline of the Roman Republic. In the past great efforts have been made, both by the papal and the Italian governments, to induce cultivation of this vast area, but owing to unfavorable economic conditions little has been heretofore accomplished. When malaria begins in May the section is practically deserted. The shepherds with their flocks take refuge in the mountains. With the discovery of the relation of mosquitos to malaria a rational prophylaxis became possible. At present the railroad employes, whose occupation renders it necessary for them to remain at their posts during the unhealthy season, are protected by screened houses, mosquito masks, and prophylactic administration of quinin. In the month of October, 1904, in the seven zones of the Roman Campagna, where the Italian Red Cross Society is making its anti-malarial campaign, prophylactic doses of quinin were given to 2,433 persons, in addition to those whose treatment was begun in previous months. In the zones under observation there were reported, during the month, 13 primary cases of malarial disease, 88 relapses, and 62 cases of non-malarial disease. Thirty-four patients were sent to Rome for treatment in hospital.

The Approaching International Medical Congress.—The fourth official bulletin has been received of the fifteenth International Medical Congress, to meet at Lisbon, April 19, 1906. It states that the number of official addresses assigned is 188 and that some of them have already been received. We note a number of American names among them: Novy of Ann Arbor, H. U. Williams of Buffalo, A. E. Macdonald of New York, A. E. Regensburger of San Francisco, A. Ravogli of Cincinnati, W. C. Gorgas and W. J. Morton of New York. The American committee of propaganda includes Frank Billings of Chicago, W. W. Keen of Philadelphia, F. Shattuck of Boston, A. Jacobi of New York, and Osler of Baltimore, with the President of the American Medical Association, Dr. J. H. Musser, as the chairman. The list of members who have sent in their subscriptions is also published. The congress medal is being engraved by the Paris physician-artist, Dr. Richer. An interesting souvenir of the congress is being prepared in the form of a medical guide to Lisbon and Portugal, with all the details, regulations and statistics that can possibly interest a physician and serve for reference later. The subjects of the various addresses are also given with the names of the speakers. Von Leyden of Berlin will present the present status of the cancer question; Balthazard of Paris, radioactivity and radiotherapy; Lassar of Berlin, inflammatory skin affections; Ravogli of Cincinnati, the precancer stage in relation to cutaneous cancer, and Hallopeau of Paris, what he calls quaternary syphilis; Vulpius of Heidelberg, spinal paralysis, and B. Fränkel of Berlin, cancer of the larynx. The committee of organization beg that communications for the congress may be sent in at the earliest possible date so that they can be published with care instead of being rushed through at the last moment. New subjects recommended are dangers of milk, nocturnal incontinence, hysteria and infantile neurasthenia, dentition and infections, school strain, hydrocephalus, congenital malignant tumors and their operability, general and local anesthesia for children, influence of tropical climates on descendants of northern colonists, mutual influence of vaccination and dermatoses, and secondary cataract.

LONDON LETTER.

A New Departure in the Teaching of Tropical Medicine.

The great advances in tropical medicine made so rapidly in the last few years in this country have from time to time been chronicled in THE JOURNAL. The importance which the subject has now attained is shown by a new departure in its teaching—the foundation of lectureships in protozoology and helminthology at the London School of Tropical Medicine. Protozoology has assumed in tropical medicine such great importance and such wide proportions that it is thought to demand the services of men specially equipped to keep pace with its advances. The same may be said, if not with so much force, of helminthology. Hitherto these subjects have been included in the general laboratory work taught in the schools of tropical medicine, but the subjects have outgrown general instruction and demand special teachers, special classes and special investigators. Thanks to the schools of tropical medicine, the physicians trained in the methods of investigating tropical disease and working in tropical countries now number many hundreds and by their labors a still further growth in our knowledge of protozoology and helminthology is to be expected in the next few years. It is thought necessary to have an authoritative center at which all observations may be focused and sifted, which will require what we do not now possess, well-trained experts. Zoologists of eminence are not wanting in this country, but for one to cope with the demands of modern tropical pathology he must specialize. The conditions of appointment to each chair are identical. The teachers must give their whole time to the service of the school and occupy themselves with research work and must teach for one hour a day in the aggregate, if required. Candidates holding medical qualifications will be preferred. The appointments will be for six years. The salaries will commence at $1,250 and rise by annual increments of $250 to $2,500.

Sulphur Dioxid as a Disinfectant and as a Destroyer of Rats.

An important report on investigations conducted for the medical department of the local government board by Dr. J. S. Haldane, F.R.S., and Dr. John Wade, D.Sc., into the destruction of rats and disinfection on shipboard has been issued. The bulk of the experiments were made with sulphur dioxid in the form of "Clayton gas," a special preparation for the disinfection of ships obtained by burning sulphur in the Clayton apparatus. Clayton gas mainly consists of the residual nitrogen of the air, a small amount of unconsumed oxygen, sulphurous acid gas in quantities up to 15 per cent., and a considerable amount of sulphuric acid in suspension. The experiments show that the gas under conditions easy to obtain forms a very efficient disinfectant of places to which it gains access. Pathogenic bacteria manifested different degrees of resistance. Anthrax spores were unaffected, but plague and cholera bacilli were destroyed after a few hours' exposure to an atmosphere of the gas containing 5 per cent. of sulphur dioxid. In disinfection the time of exposure was found to be more important than the degree of concentration of the gas. Rats were readily killed. Drs. Wade and Pembrey have shown that .5 per cent. of sulphur dioxid will kill rats within two hours. Cockroaches and fleas are also killed under these conditions. These results were readily obtained in comparatively empty spaces and in holds not containing cargo. The results obtained in holds containing a ship's cargo were altogether different. The penetrating power of sulphur dioxid was found to

be very gradual for many articles of the cargo, particularly woolen and other fabrics (not cotton) done up in tight bales. This was shown to be mainly due to the power of the fabrics to absorb the gas. Thus, a bale of wool absorbed at least ten times and a bale of jute at least four times its own volume. The absorption takes place in the outer layers; after many hours the air within the bale contains no sulphur dioxid. Similar absorptive power was shown by grain and other food substances. A further objection to the use of sulphur dioxid is its liability to damage articles exposed to it. In a hold packed with cargo not only did it fail to act as a germicide, but owing to the absorption by bales, it was insufficient to kill rats and insects. Drs. Haldane and Wade suggest that if it is desired to kill rats before discharging the cargo, a small proportion of carbon monoxid (say 10 per cent.) should be added to the gas used for the hold. The best results would be obtained by unloading the cargo, with precautions against the escape of rats, and then treating the empty holds with sulphur dioxid.

The Centenary of the Royal Medical and Chirurgical Society.

The greatest of the London medical societies, the Royal Medical and Chirurgical Society, was founded on May 22, 1805. The council has decided to celebrate the centenary in May next in a manner worthy of the occasion. There will be a reception at the society's rooms by the president, and an exhibition of books, prints, instruments, etc., published or in use at the time of the foundation of the society. A centenary volume will be published giving a narrative of the society and its work. There will be a festival dinner and a conversazione at the Royal College of Surgeons.

The New Director General of the Army Medical Service.

A new departure has been made by the appointment to the important post of director general of the army medical service of a comparatively junior officer. This is connected with the recent radical changes made in the service after the inquiry into the so-called "hospital scandals" of the South African War, and the appointment no doubt has the approval of, if it has not been inspired by, the advisory board of distinguished civil doctors which has recently been created. The new director general is Lieutenant-Colonel Alfred H. Keogh, an Irishman, who joined the service in 1880 and became lieutenant-colonel in 1890. He greatly distinguished himself as an organizer in the South African War, for which he received several decorations, and at headquarters, where he acted as a deputy to his predecessor.

New Expeditions of the Liverpool School of Tropical Medicine to West Africa.

On the occasion of the recent retirement of Sir William Macgregor (who is a medical man), from the post of governor of Lagos the Liverpool School of Tropical Medicine decided to mark their appreciation of his valuable services in the cause of health and sanitation in West Africa by sending further commissions to continue the investigations conducted there by the school for the past five years into tropical diseases. A fund was accordingly raised in honor of Sir William Macgregor at a farewell banquet given to him before his departure to Newfoundland, of which he has been appointed governor. The first expedition will be under the charge of Professor Boyce, the dean of the school. He will be accompanied by Dr. Arthur Evans, medical superintendent for one of the large Liverpool shipowners and by Dr. Clarke. The expedition will pay a short visit to the Gambia, French territory (Konakry), and Sierra Leone. A southern expedition will be in charge of Colonel Giles, late sanitary commissioner of the northwestern provinces of India, and Dr. R. E. MacConnell of McGill University. It will visit the Gold Coast, Lagos, Southern Nigeria and, if possible, Northern Nigeria. The principal object of the expedition will be to study the distribution of biting insects, to which in Africa a large proportion of the prevalent diseases are due, and to study the question of domestic antimalarial measures in the various colonies. At the present time, as announced in THE JOURNAL, the Liverpool school has an important expedition studying sleeping sickness in the interior of the Congo Free State, which has been there since August, 1903. Next year the school will send an expedition to the Amazon to study yellow fever, which is the second expedition it has sent for the purpose. Thus its enterprise is phenomenal, but the possibility of all these expeditions is largely due to the munificence of Sir Alfred Jones, president of the school, a wealthy Liverpool merchant who has contributed liberally. A deputation consisting of Sir Alfred Jones, Professor Boyce, Dr. Evans, Dr. Clarke, Colonel Giles, Dr. MacConnell of Canada, Dr. Thomas of Canada, and Dr. A. Breinl of Prague, waited on the colonial secretary for the purpose of securing his good wishes for the expeditions, which were readily given. The expenses of the expeditions have been entirely defrayed by subscriptions of Liverpool merchants.

DUBLIN LETTER.

A Workhouse Scandal.

A shocking state of affairs was brought to light recently in the North Dublin Union by one of the local government board's inspectors, Dr. Biggar. Into the nursery of that institution during the three years ended June 30, 1904, about 1,000 infants under 2 years of age were admitted, 396 of whom died, or two out of every five. An examination of the premises occupied gave an explanation of the mortality. These miserable children, of whom there are generally from 60 to 70 at a time, are packed into rooms insufficient for the number, ill-ventilated and foul smelling. The staff maintained to take charge of this nursery consists of one sister and two attendants (not nurses), with the assistance of six or eight inmates. The principal ward has practically no ventilation except by skylights, and the inspector states that the air therein had a very foul smell. It is stated, too, that the site of these dens which constitute the nursery was to begin with, unsuitable, since they are built on a disused graveyard. The children who are admitted to a union workhouse in this country are usually in anything but a healthy condition. Many are foundlings or illegitimate, and nearly all are suffering from the effects of poverty or of neglect. Many are actually ill. Such infants, instead of being herded together without either air or care, require, if they are to have any chance of healthy lives, strict medical attention and the best hygienic surroundings. Without the odium arising from the publicity of Dr. Biggar's report there is little reason to think that the North Dublin guardians would have paid any attention to the matter. After many postponements the guardians have at length adopted certain suggestions, which, though far from giving an adequate solution to the problem, will afford a temporary relief. As, however, the present winter is accompanied by much distress in Dublin, it is probable that the accommodation of the workhouse will be taxed to its utmost before the winter is over.

Richmond Asylum.

In view of the alarming increase of lunacy in Ireland, to which allusion was made in the last Dublin letter, the recent report of the Richmond District Asylum is particularly interesting. This asylum, the largest in this country, contains about 2,700 patients, and has for medical superintendent the well-known alienist, Dr. Conolly Norman. The number of patients under treatment continues year by year to increase, though the actual number of admissions last year was the same as in 1902. The cases admitted were mostly of an unfavorable nature as regards prospect of recovery, many of them being afflicted with what are regarded as incurable types of mental disease. Suicidal tendencies were more marked than usual, and several patients who feared suicide presented themselves as voluntary patients. Dr. Norman is a believer in a freer mode of treating the depressed than is usual in these countries, and he is to be congratulated that no successful attempt at suicide was made. It must, of course, be remembered that in no asylum in the United Kingdom is there so much freedom given to patients as is customary in America. Dr. Norman holds much the same views as Dr. Coulston of Edinburgh on the importance of alcohol in the causation of insanity, and we find that one-third of the cases where any cause has been assigned are credited to this cause. On the other hand, in the column headed "sexual intemperance" there is not a single entry. Hereditary influences were made accountable in 82 cases. The mortality of the asylum during the year was not unduly high, 7.9 per cent. of the average number of patients, but some of the causes seem to be capable of diminution. Phthisis especially is responsible for a larger number of deaths than should occur if modern preventive and therapeutic measures are practiced. It is interesting to note the variety and number of the industrial occupations in which it has been found possible to engage the great majority of the patients. All the clothes worn in the asylum have been made on the premises, and the stuff itself has been woven there. One can hardly think of any occupation from chimney-sweeping to "drawn-thread work," from blacksmith's work to embroidery, in which some of the patients are not employed.

Correspondence.

Modern Hospital Asepsis from an Interne's Viewpoint.

CHICAGO, Dec. 21, 1904.

To the Editor:—It seems almost superfluous and uncalled for to try to bring out anything more relative to asepsis in the modern hospital and operating room of to-day, but with the exception of a hint of them now and then to be seen in various articles in some of the later journals, no one has touched on two or three points that should be strongly emphasized and criticised, and the causes of which should be eliminated in order to get better aseptic surgical results.

One would think on close examination of one of the newer operating rooms that every precaution had been taken, that every means known to bacteriology had been or was constantly being employed to destroy the bacteria that had already gained entrance to the operative field and its environment and to prevent any further contamination. The room as a whole is built so that every square inch of its floor, walls and ceiling can be cleaned. There are no corners or ledges for dust or dirt to lodge or which are inaccessible to the frequently appearing scrubbing brush. Marble, iron, stone, tiling, enamel, glass and nickel are used exclusively in the make-up of the room and its necessary furnishings, not so much for the durability of such materials, but in order to obtain smooth surfaces which can be easily cleaned—surgically cleaned.

Everything that is brought into the room is surgically clean. The tables are scrubbed, washed with antiseptic solutions and covered with covers that have been sterilized. The basins, towels, sponges and instruments have all been baked, steamed or boiled. Only nurses specially trained in asepsis and antisepsis and in the reasons and necessity for the same, make the operating room ready for an operation and assist during it. In the dressing rooms are to be found scientifically arranged wash basins where hot and cold sterile water, sterile soap, sterile brushes and antiseptic solutions can be used without the necessity of touching anything that is not clean. Sterile gowns are put on, sterile gloves are at hand to cover the hands and sterile masks are ready to protect the open wound from the pathogenic bacteria that are present in such large numbers in our mouths and nostrils.

It certainly would seem improbable, yes, almost impossible, for clean wounds to become unclean in such an operating room, fitted with every appliance known to prevent it. But they do become unclean, wounds do become infected, clean hernias frequently must be "dressed" for days after the operation, single iridectomies do occasionally result in suppurating panophthalmias, ventral "suspensions" do become "fixations" after weeks of irrigation of purulent sinuses leading down to peri-uterine abscesses. Stitch abscesses do only too frequently occur. "Oosings" which are "only serum" do appear after interval, clean appendectomics. Redness and induration do occur even after the much abused poor, innocent catgut has been really and truly sterile.

And why?

It is not always due to some error in aseptic technic done behind the screen in the ward by the usually extremely careful nurse during the preparation of the patient, nor is it always due to the junior interne who, fresh from books on asepties, is anxious to be known as a careful man in his preparation of the patient. It is not always because the bandage slipped up while the patient was being transported to the operating room from the bed. It is not always because the senior assistant interne has become careless because he is soon to leave the hospital. It is not always due to the fact that this or that unscrubbed nurse "touched things" about the sterile field. It is not always due to any peculiar affinity between bacteria and catgut, and it is not always because the "fool patient stuck his finger under the eye-pad to stop the itching."

But such unnecessary and inexcusable infections do occur and often, too, in our best hospitals and in our most carefully managed operating rooms. It seems to me that the real cause lies not with the hospital operating room, internes or nurse, but with the surgeon himself, the operator, the teacher and professor of aseptic surgery, and simply because he does not really do what he teaches others to do, what he believes should be done, and what he doubtless for the most part thinks he does do.

He says to the class, "Scrub hard for fifteen or twenty minutes," and then he comes hurriedly to the clinic and scrubs but two or three, in spite of the fact that he knows very well that he can not put on sterile gloves with unclean hands. He says, "To obtain aseptic surgical results you must not only make clean, but you must keep clean," and within a few moments he has literally removed his glasses with his sterile glove, or has traced a drawing on a blackboard and then, with not so much as a dip into the bichlorid solution, takes up the iridectomy knife to remove the cataract.

He says to the assistant. "While you are in my service do not go to the autopsy room," and yet he will come directly to an operation from the dissecting room himself.

Teachers of surgery—leading clinicians of to-day—can be seen daily grossly breaking the fundamental rules of asepsis in all our leading clinics and hospitals. They are very exacting about others and then very careless about their own behavior. The first is excellent, the last is unpardonable. The more strict with nurse and interne they are the better, but they must not expect the nurse and interne to remain enthusiastic about absolute surgical cleanliness when they see him—just because he is late or in a hurry, or for no reason whatever—neglect to do what he demands of them.

It is not necessary to go more into detail. Scores of such instances of aseptic lying are noticed by an interne during his year or two of service relative to some of our best operators. The same operator should know he is constantly watched, looked up to, listened to and gladly followed just so far as he is true to surgery and to himself, and criticised and ridiculed just so far as he blames nurse, interne or catgut when it is only too evident that he himself has been the cause for failure of primary union.

JOHN C. HOLLISTER.

Urination in the Dorsal Position.

LANCASTER, PA., Jan. 3, 1905.

To the Editor:—The inability to void urine lying down is common to many people even in health. By practice this may be overcome; rather easily when the half reclining position may be assumed, and the ability to urinate in the dorsal position gradually acquired. The patient usually has the joy of learning the technic of dorsal urination with added zest from postoperative pain and ether nausea.

I have found it of distinct advantage to have all patients who will have to void in the dorsal position practice this often before the position is necessitated, when time permits. In obstetric cases I order the morning urination on the douche pan during the last month of pregnancy until the knack is thoroughly acquired. In operative cases advantage is taken of every opportunity during preparatory treatment. I have had no patient who learned to void before operation who could not void afterward, excluding, of course, obstetric cases in which there had been much pressure on the urethra, and operative cases involving the region of the urethra or rectum.

Where the physician is so situated that he must either catheterize the patient himself or must trust to untrained assistants any help to make a patient void is of great value. Under the best surroundings there is danger in catheterizing. Patients readily see the value of this practice and are glad to adopt it. I have found that the procedure saved me a very great deal of trouble.

JOHN L. ATLEE.

Sarcoma of Intestines.

RIVERSIDE, CAL., Dec. 30, 1904.

To the Editor:—Five years ago I removed from Harold S. a small round-celled sarcoma with several inches of intestine, from which it originated. The case was reported in THE

JOURNAL, March 9, 1901, under the title "Sarcoma of the Intestines with Table of Fifteen Cases of Resection." A few weeks ago I visited this patient, now as well developed and as robust a boy of 10 as one often sees. I found no evidence of trouble about his abdomen or lymphatics, nor anywhere, in fact. The only effect traceable to the operation was a little more frequency of bowel movements than normal, but this never amounted to a diarrhea; usually there were one or two movements a day. In view of the fact that although a number of enlarged mesenteric glands were of necessity left in the abdomen and that there was no return of the growth some very interesting questions are suggested. Were the glands that were left in the mesentery real sarcomatous foci? Has the organism a certain amount of power to overcome a sarcomatous "infection"? Is there a benign growth which so nearly resembles sarcoma that experts fail to distinguish it?

C. VAN ZWALENBURG, M.D.

Queries and Minor Notes.

ANONYMOUS COMMUNICATIONS will not be noticed. Queries for this column must be accompanied by the writer's name and address, but the request of the writer not to publish his name will be faithfully observed.

ERRORS IN VON BERGMANN'S SYSTEM OF SURGERY.

WINFIELD, ARK., Dec. 31, 1904.

To the Editor:—On page 17, vol. iv, of von Bergmann's System of Surgery, by Bull, I notice what might be construed a great mistake. On lines 10 and 11 it is said to use a tube 10-15 cm. Does it mean ten-fifteenths or ten and fifteen one-hundredths cm.? On the same page the bifurcation of the esophagus is spoken of. CHEVIS BEVILL.

ANSWER.—It is very evident that the "10-15 cm." on page 17 of vol. iv of "Von Bergmann's System of Surgery" by Bull, is a mistake, as it should be "10-15 mm." The term "bifurcation" on the same page refers not to a bifurcation of the esophagus, but to the bifurcation of the trachea. The word trachea might have been inserted to advantage and the sentence would have been relieved of all ambiguity.

SERUM TREATMENT OF CANCER.

GULFPORT, MISS., Dec. 18, 1904.

To the Editor:—Have there been any favorable developments in experiments on serum treatment of inoperable cancer of the uterus? If so, please give me any information available as to where or how I may obtain the serum. R. C.

ANSWER.—There is at present no recognized serum treatment of cancer. Doyen of Paris, France, claims to have a serum which he is using in the treatment of inoperable cancer, and has recently obtained considerable newspaper notoriety concerning it. Metchnikoff has recently reported on the matter in the French medical press. The serum is obtained from the *Micrococcus neoformans*, which is supposed by them to be the cause of cancer. It has not yet been established either that the organism mentioned is the cause of cancer or that the serum possesses any curative properties. The serum is not obtainable here, so far as we know. See also page 145.

Marriages.

WILLIAM G. LIST, M.D., Cincinnati, to Miss Martha White, December 20.

JULIUS PROPPER, M.D., to Miss Gizelle Propper, both of Philadelphia, December 29.

WILLIAM PEPPER, M.D., to Miss Mary Godfrey, both of Philadelphia, December 31.

EDWIN D. S. MULLISON, M.D., Philadelphia, to Miss Fannie W. Warren of Wrightstown, N. J., December 31.

GEORGE JOHNSON TOMPKINS, M.D., to Miss Elizabeth Haskins Dillard, both of Lynchburg, Va., December 28.

WALTER L. BOND, M.D., West Somerville, Mass., to Miss Bertha B. Fennell of Everett, Mass., Nov. 2, 1904.

TALBERT B. GINN, M.D., Hesselton, Ky., to Miss Mattie Hillis of Vanceburg, Ky., in Cincinnati, December 16.

Deaths.

Byron Cook Pennington, M.D. Jefferson Medical College, Philadelphia, 1881, fourth vice-president of the American Medical Association; president of the medical staff of, and surgeon to the Atlantic City Hospital; president of the Atlantic City Academy of Medicine; several times president of the Atlantic County Medical Society; for two years and a half surgeon in the merchant service between New York and Brazil; a member of the Atlantic City council, died at his home in Atlantic City, N. J., January 1, from uremia, after a long illness from interstitial nephritis, aged 46. In recognition of the personal and professional integrity and ability of Dr. Pennington the physicians of Atlantic City united last October in presenting to him a silver loving cup. He was chairman of the general committee of arrangements for the American Medical Association session of 1904.

Eber K. Watts, M.D. University of Michigan Department of Medicine and Surgery, Ann Arbor, 1879, a member of the American Medical Association and of the Wayne County (Ind.) Medical Society, some-time coroner of Wayne County, for 18 years a practitioner of Richmond, Ind., died suddenly while attending a consultation near Westville, Ohio, January 3, from uremia, aged 45.

Arthur C. Adams, M.D. Medical Department of Columbian University, Washington, D. C., 1873, a member of the American Medical Association, shot himself at his home in Washington, December 31, and died at Providence Hospital early on January 1, aged 50.

Robert H. Somers, M.D. Toronto University Medical Faculty, 1896, a member of the American Medical Association, one of the most popular physicians of Plymouth County, Iowa, died at his home in Lemars, January 3, after an illness of one week from pneumonia.

Hiram W. Young, M.D. Medical Department of Washington University, St. Louis, 1901, of St. Louis, was drowned by the upsetting of a gasoline launch in which he was making a cruise to Florida, about 25 miles below St. Louis, December 30, aged 33.

Calvin H. Kendall, M.D. Berkshire Medical College, Pittsfield, Mass., 1843, one of the first to employ nitrous oxid gas as an anesthetic in the extraction of teeth, died at his home in Ridgefield, Conn., Nov. 30, 1904, from uremia, aged 87.

Arthur T. O'Hara, M.D. University of Buffalo Medical Department, 1890, for 13 years physician and superintendent of the Buffalo Quarantine Hospital, was found dead in that institution January 1, from heart disease, aged 43.

Joseph Bartley Patrick, M.D. Medical Department of Western Reserve University, Cleveland, 1886, of Baldwin, Wis., died in St. Luke's Hospital, St. Paul, Minn., December 30, from post-operative pneumonia, aged 48.

Frederick H. Griffin, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1880, committed suicide at his home in Philadelphia, January 1, by inhaling illuminating gas, aged 48.

Shorland Harris, M.D. Exeter College, England, 1852, a surgeon in the Crimean War, died at his home in Mason City, Iowa, January 1, from cerebral hemorrhage, after a short illness, aged 75.

Evan F. Smith, M.D. Medical Department of the Columbian University, Washington, D. C., 1878, died at his home in Brooklyn, N. Y., from influenza, after a short illness, January 3, aged 53.

Joseph L. Richard, M.D. Tulane University of Louisiana Medical Department, New Orleans, 1870, died at his home in Donaldsonville, La., December 31, after a short illness, aged 56.

John G. Lee, M.D. University of Louisville Medical Department, 1865, died at his home near Lasea, Tenn., December 24, from paralysis after an invalidism of eight years, aged 75.

Emory F. Gresham, M.D. Hospital College of Medicine, Louisville, 1892, died at his home in Sedalia, Mo., December 28, from brain tumor after an illness of several weeks, aged 35.

Amos C. Wood, M.D. New York University, New York City, 1855, the oldest practitioner of Owensboro, Ky., died at his home in that city, January 2, from heart disease, aged 80.

Gustavus A. Rene, M.D. Medical College of the Pacific, San Francisco, 1872, of San Bernardino, Cal., died at the hospital in that city, December 23, after a long illness, aged 63.

James E. Jones, M.D. Albany (N. Y.) Medical College, 1855, for 45 years a resident of Clayville, N. Y., died at his home near that village, December 25, aged 72.

James M. Eagleton, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, died at Ocala, Fla., January 4, from heart disease, aged 70.

Harry Lewis Hamilton, M.D. California, 1894, died at his home in Chicago, Cal., December 30, from spinal meningitis, after an illness of 36 hours, aged 33.

Frank E. Yerkes, M.D. Pennsylvania, 1894, died at his home in Ambler, Pa., December 16, after an illness of four days, from erysipelas, aged 38.

Hector S. Aley, M.D. Rush Medical College, Chicago, 1885, died at his home in Denver, Colo., December 9, from pernicious anemia.

David M. Shively, M.D. Indiana State Board, 1897, died at his home in Yorktown, Ind., from nephritis, January 3, aged 63.

Thomas A. Pierce, M.D. Philadelphia, 1850, died recently at his home in Winona, Minn., and was buried January 7.

Book Notices.

ELECTRO-DIAGNOSIS AND ELECTRO-THERAPEUTICS. A Guide for Practitioners and Students. By Dr. Toby Cohn, Nerve Specialist, Berlin. Translated from the Second German Edition and Edited by Francis A. Scratchley, M.D., New York, Chief of Clinic, Diseases of the Nervous System and Instructor in Electro-Diagnosis and Electro-Therapeutics, University and Bellevue Hospital Medical College. With Eight Plates and Thirty-nine Illustrations. Cloth. Pp. 280. Price, $2.00. New York and London: Funk & Wagnalls Co. 1904.

This book presents the underlying scientific principles of electrodiagnosis and electrotherapeutics. It also explains the apparatus necessary for the use of electricity in the disorders where it is indicated. The book is conservative in spirit and has reached a recognized standing in Germany.

A TREATISE ON APPLIED ANATOMY. By Edward H. Taylor, M.D. (Dublin Univ.), F.R.C.S.I., Surgeon to Sir Patrick Dun's Hospital. Illustrated with 178 Figures and Plates from Original Drawings, Many Printed in Colors. Cloth. Pp. 738. Price, $9.00. London: Charles Griffin & Co. Philadelphia: J. B. Lippincott Co. 1904.

The author's "object has been to provide an account of the regional anatomy of the human body in its more important applications to medicine and surgery." This has been so well done that nearly every point in anatomy has been intimately connected with some practical point in medicine or surgery so that the reading of the work has been made not only instructive but a pleasure. The work contains almost as much surgery as anatomy, and the illustrations, many of which are colored, are all very good. It is a good work and one which can be consulted with profit not only by the student but by the operating surgeon.

NEW METHODS OF TREATMENT. By Dr. Laumonier. Translated and Edited from the Second Revised and Enlarged French Edition by H. W. Syers, M.A., M.D., Cantab., Physician to Out-patients Great Northern Central Hospital. Cloth. Pp. 320. Price, $2.50 net. Chicago: W. T. Keener & Co. 1904.

This book is of peculiar importance in that it takes up and discusses the relative value of the more important newer remedies of the vast number which have been placed on the market. As a rule, the general practitioner gains his acquaintance with these newer remedies only in published formulas and prescriptions which in many instances gain their entrance into medical literature through the advertising columns. The author divides the several preparations into groups according to their actions and uses, including in this classification nutritive alterants, blood alterants, mineral medication, respiratory alterants, renal alterants, vasomotor alterants, opotherapy, serotherapy, nerve alterants, antipyretics and antiseptics. Space can not be given to the discussion of these different groups. To the physician who wishes a more thorough comprehension of the relative value of the newer preparations than can be obtained in the current literature, this book can be safely recommended.

THE PATHOLOGY OF THE EYE. By J. Herbert Parsons, B.S., D.Sc. (Lon.), F.R.C.S. (Eng.), Assistant Ophthalmic Surgeon, University College Hospital. Vol. I. Histology—Part I. Cloth. Pp. 388. Price, $3.50 net. New York: G. P. Putnam's Sons. 1904.

This is the most complete work of its kind ever undertaken in any language. Even in Germany the "Ginsberg Manual" is the only book which may be said to compare with Mr. Parsons' work. The first volume by its excellence promises much for those that are to follow. The work presents more than its title indicates; it abounds in practical applications of pathology to the surgery and treatment of eye diseases. In discussing a given condition, in addition to its pathology and histology Mr. Parsons has collected the theories and opinions of the world's authorities and has most successfully welded them into a very practical, homogeneous whole. Many of the more valuable of the late methods of laboratory technic are also given. The illustrations are taken chiefly from photographs, another good point, since the advanced student no longer needs schematic drawings, but prefers to see things as they really are to be seen under the microscope. There might, with advantage, be many more illustrations, and especially those in color, none of the latter appearing in the first volume. The binding also is inferior, especially for a work which is of such value that it can not fail to be in constant use.

PRACTICAL MEDICINE SERIES OF YEAR BOOKS, Comprising Ten Volumes on the Year's Progress in Medicine and Surgery. Issued Monthly. Under the General Editorial Charge of Gustavus P. Head, M.D., Professor of Laryngology and Rhinology, Chicago Post-graduate Medical School. Vol. VIII. Materia Medica and Therapeutics, Preventive Medicine, Climatology, Suggestive Therapeutics, Forensic Medicine. Edited by George F. Butler, Ph.G., M.D., Henry B. Favill, A.B., M.D., Norman Bridge, A.M., M.D., Daniel R. Brower, M.D., Harold N. Moyer, M.D., July, 1904. Volume IX. Physiology, Pathology, Bacteriology, Anatomy, Dictionary. Edited by W. A. Evans, M.S., M.D., Adolph Gehrmann, M.D., William Healy, A.B., M.D., August, 1904. Vol. X. Skin and Venereal Diseases, Nervous and Mental Diseases. Edited by W. L. Baum, M.D., Hugh T. Patrick, M.D. September, 1904. Chicago: The Year Book Publishers.

Volume VIII keeps up the standard that has been maintained by this valuable series. Butler's review of materia medica and therapeutics is especially full, occupying nearly one-half of the volume, and seems to give a very complete résumé of the advances that have been made during the year covered. Favill's review of Preventive Medicine is also judicious and thorough, and the same may be said of the section on climatology by Bridge and Claypole, and those on suggestive and forensic medicine, respectively, by Brower and Moyer. The editors have given us well-selected abstracts and the excerpt affording a fair résumé of the general advances made during the year. Volume IX covers much ground, but the material has been well selected, thus making one of the most valuable books of the series. W. A. Evans reviews anatomy and pathology, including general and special pathology. A. Gehrmann has charge of the section on physiology and bacteriology, considerable space being devoted to biochemistry and serum reaction, and Wm. Healy has compiled the dictionary of new words, which embraces twenty-two pages of nonpareil type. Volume X covers only two subjects, cutaneous and venereal diseases, by W. L. Baum, including genitourinary medicine and surgery, and nervous diseases by Patrick and Mix. Both are able and comprehensive critical reviews of the advances made during 1903 and cover a considerable portion of the literature of their respective subjects. The portion on mental diseases is rather brief, but the papers abstracted are well selected and the critical remarks of the editor are valuable as conveying judicious opinions on certain special points.

SURGICAL EMERGENCIES. THE SURGERY OF THE ABDOMEN. Part I. Appendicitis and Other Diseases About the Appendix. By Bayard Holmes, B.S., M.D., Professor of Surgery in the University of Illinois. Paper. Pp. 349. Price, $2.00 net. New York: D. Appleton & Co. 1904.

The author states that his volume of 350 pages is a part of "A Text-Book of Surgery for Practitioners of Medicine." As a text-book article, there is much in it that could be eliminated and much that could be condensed with advantage, particularly on the subject of appendicitis, for the complete title of the work is "Appendicitis and Other Diseases About the Appendix." With some of the author's statements we can not agree; for instance, "The examination of the patient forms only a small part of the material on which the diagnosis (of appendicitis) is made." On the contrary, the physical examination of the patient plays a very large and important part in the diagnosis in a large

proportion of the cases. The statement that "The appendages of the intestinal tract, especially the appendix vermiformis, the gall-bladder, and Meckel's diverticulum are traps laid for the purpose of catching and disseminating infection," might pass in a figurative sense, but when unqualified, as it is here, is not good in a text-book. The formula given for Schleich's solution on page 209 is incorrect, as it contains too much morphin, and Schleich does not use "normal salt solution." The statement on page 241 that "Ideal appendicectomy ought not to require an incision longer than an inch in the thin and an inch and a half in the fat patient; it ought not to require more than fifteen minutes of general anesthesia nor more than four or five days in the hospital and away from work or business" is pernicious in more ways than one. The incision should be long enough to permit the necessary work to be properly done regardless of the tape measure. Good work in many cases cannot be done through an inch incision. No patient who has had the abdomen opened and work done on the intestine should be permitted to leave the hospital and to resume his work or business in four or five days. The process of repair requires time and until repair is reasonably complete accidents may happen, and a surgeon is not justified, under ordinary circumstances, in permitting his patients to take the risk of returning to work. The author's views concerning the desirability of early operation and the very earnest and forceful manner in which he presents his arguments therefor are commendable. The "other diseases about the appendix" treated are peritonitis, intussusception, perforating typhoid ulcer and carcinoma of the intestinal tract. These are not so extensively dealt with as is appendicitis. Although one will find a number of statements to which one can not subscribe, still the work as a whole forms an interesting and instructive monograph, written in a very positive style.

THE ACTION OF LIGHT AS A THERAPEUTIC AGENT. By Leonard K. Hirshberg, Baltimore, Md. Fiske Fund Prize Dissertation. Cloth. Pp. 49. Providence: Snow & Farnham. 1904.

ROENTGEN-RAY DIAGNOSIS AND THERAPY. By Carl Beck, M.D., Professor of Surgery in the New York Postgraduate Medical School and Hospital. With 322 illustrations in the text. Cloth. Pp. 460. Price, $4.00. New York and London: D. Appleton & Co. 1904.

LIGHT ENERGY; Its Physics, Physiological Action and Therapeutic Applications. By Margaret A. Cleaves, M.D., Fellow of the New York Academy of Medicine. With Numerous Illustrations in the Text and a Frontispiece in Colors. Cloth. Pp. 827. Price, $5.00 net. New York and London: Rebman Co. 1904.

The number of books dealing with the various forms of radiant energy and their application to medicine is increasing rapidly. One of the first books in this field which has proved so productive of literary activity was that of General Pleasanton on "The Influence of the Blue Ray of the Sunlight and of the Blue Color of the Sky in Developing Animal and Vegetable Life in Arresting Disease and in Restoring Health in Acute and Chronic Disorders to Human and Domestic Animals," published in Philadelphia, 1877. The general's book was printed with blue ink and bound in blue. This led Finsen to suggest that "its contents could hardly fail to be colored also," a remark not without reason in view of General Pleasanton's tendency to regard blue light as a panacea. Of the three books at present noticed, the first may be dismissed with the statement that it was deemed worthy of the Fiske prize. It contains nothing particularly new. Dr. Beck's book on the Roentgen ray is marred by the introduction of many unnecessary details especially concerning individual cases. Numerous and often poorly made illustrations have been inserted; those of microscopic sections are wholly worthless. There is a tendency, it would seem, to stretch the efficacy of the *x*-ray to the utmost, as noticed for instance, in the following statement in speaking of one case of scarlatinal noma: "It seemed that after strong irradiation the process was checked." On the whole, no very serious attempt is made at careful, critical analysis of the diagnostic and therapeutic value of the *x*-ray on the basis either of the author's own material or that of others. The book is consequently not stimulating in its tone, although, of course, it contains much valuable information. Dr. Margaret A. Cleaves presents a more comprehensive work of its kind, in which she endeavors to embody the results of eleven years of study and practical experience. She does not consider fully the *x*-ray except more or less incidentally. The fundamental physics are considered at length. Dr. Cleaves has chosen as her aim the placing of light energy for general therapeutic purposes on a foundation as secure and scientific as that which the brave Finsen provided for its use in diseases of the skin. This is an ambitious undertaking, but the author has proceeded in the only way that leads on to its successful realization, namely, by critical study of all available material before drawing any conclusions. We believe this book may be recommended to those who wish to have on hand an able and conscientious discussion of light in its physical, physiologic and therapeutic aspects.

Miscellany.

GREAT INACCURACIES IN THE DOSAGE OF POTASSIUM IODID IN SATURATED SOLUTION.

Dr. William Healy.

CHICAGO.

Discussion between a druggist and a patient who thought he was not getting his regular amount of potassium iodid in solution led me to note an inaccuracy in the usual making up of the saturated solution. Later, in conversation, Dr. H. T. Patrick called my attention to a still greater error; namely, that most physicians regulate the dosage of this frequently prescribed solution as if one drop of the solution equaled one grain of the drug. I had always done so on the authority of Hare (Practical Therapeutics, ed. 1897, p. 225). This is far from being the truth. In proving up this matter on a practical basis, as I have done in company with two expert pharmacists, I note even a third possibility of error in dosage—the content of the domestic teaspoon.

The standard pharmacopeial authorities state that potassium iodid is soluble in .75 parts water, standard temperature C. 15, F. 59. I find that on this authority it is common for druggists to simply add these properties in making the saturated solution. Now waiving the point as to possible difference of solubility varying with different methods of manufacture, and working with granulated potassium iodid, such as druggists ordinarily carry, I find that potassium iodid 3iv added to distilled water 3iii gives a mixture of 3ivss. This, however, at room temperature, F. 70, is not a saturated solution. Almost another dram of potassium iodid can be dissolved, bringing the mixture then up to 3iv, m. i, practically one grain to the minim.

Now with regard to drops: I find them, as Dr. Patrick asserted, very small, indeed. Since it is almost impossible to drop the solution over the neck of a bottle, a medicine dropper is ordered. Using the common straight dropper 60 drops is found to equal only from 28 to 40 minims. From an eye pipette sold at some places as a medicine dropper 60 drops equals from 46 to 49 minims. Sixty drops from a thin glass beaker equals 28 minims and from a small graduate equals 39 minims.

Then, investigating the household measures, I find that what the laity considers a teaspoonful of the solution in question contains from 85 to 95 minims. How ludicrously inaccurate these various methods of dosage are is shown by their comparison. For instance, if one prescribes the 60 pipette drops fondly supposed to be a dram of the so-called saturated solution he is giving only about 41 grains of potassium iodid, or if he orders a teaspoonful, also thought of as a dram, he may be giving 90 grains—over twice as much. Or putting it in another way, the teaspoonful contains about 120 pipette drops.

Summarizing these various difficulties it appears, then, that when using the thoroughly saturated solution, dropped from a pipette, there is an error of at best 25 per cent. and when given by the teaspoonful of 33 per cent. Or, if properly measured by minims, the druggist's mixture may involve a difference of 12 per cent. In giving the large doses over the prolonged periods, which so frequently has to be done, it would be distinctly worth while to know what we are doing. As it stands, with most of us, when we think we are giving, say, 120 grains we may

really be giving 110 grains or 90 grains, or 160 grains. Evidently the only way to be even approximately accurate is to prescribe potassium iodid in solution *completely* saturated and measured for dosage, as it may be more rapidly and conveniently than by the pipette in a minim graduate.

1682 Sheridan Road.

Expert evidence is not evidence of fact, it is evidence of opinion based on scientific knowledge. Medical men give evidence of fact when they speak in the witness-box as to physical conditions which have come under their actual observation; but when they draw inferences from those conditions as to the duration of injuries, as to the amount of incapacity produced, or as to the cause of them so far as these points lie outside the limits of their knowledge, they then become expert witnesses.—*Lancet.*

Alcohol and Hypnotism.—Russian physicians are treating alcoholic cases by hypnotism, according to the *Gazette Médicale de Paris.* The first dispensaries for the treatment of alcoholism by hypnotism were used in 1896 in the psychiatric clinic of Moscow, and in 1891 at the hospital of Ijevo. Since then many establishments of the same kind have been started at Ekaterinislav, Voronege, etc., and all have given excellent results. According to the studies of Dr. Rybazoff the treatment of alcoholic cases by hypnotism has given 75 per cent. of radical cures, while all the other known methods have never given more than 30 per cent.

Doyen's Cancer Serum.—According to the *Semaine Médicale,* Doyen formally reports that Metchnikoff has obtained pure cultures of the *Micrococcus neoformans* in 41 out of 121 tubes inoculated with cancer material. The colonies were most numerous in material from the more malignant tumors. Doyen claims that 15 patients with cancer, inoperable in October, have been so much improved by his serum treatment that surgical intervention was rendered possible, and was successfully done. Two cancers of the breast, he claims, subsided completely under the treatment, which allowed the removal of an advanced tumor on the other breast. Before the Paris Société de Chirurgie, December 14, Doyen exhibited these and 8 other patients with advanced cancers whom he proposes to treat with his serum and to operate on later.

Consanguinity in Genesis of Deafness.—M. Natier of Paris has recently reported 2 cases of deafness coming on in the twenties in two sisters, whose parents had been cousins. The deafness is bilateral, progressive and accompanied by subjective symptoms, and has proved rebellious to all treatment. He has been very successful in other cases of deafness—sometimes in cases incurable by all other means—by re-educating the ear with acoustic exercises with tuning forks. He calls this the physiologic re-education of the ear, and states that if used early in encroaching deafness, it will ward it off. The general health must be kept in good order at the same time. His communication on the subject was read at the recent French Congress of Internal Medicine, and is published in the *Gazette Méd. de Paris,* November 5.

Hydrophobia in Berlin.—The German authorities have published a report of those in Berlin bitten by suspected mad dogs during 1903. During the year 307 persons were bitten by dogs supposedly mad. Rabies was conclusively demonstrated in 140 of the dogs. Of the 307 persons bitten, 281 (or 1.5 per cent.) received the Pasteur treatment. Of these only 4 succumbed, and one is reported to have recovered after the appearance of the symptoms of the disease. Of those not treated by the Pasteur method, but receiving other medical treatment, 6 per cent. died of the disease, and of those receiving no treatment whatever, 11 per cent. Allowing for the fact that a large proportion of patients bitten by supposedly rabid dogs do not develop the disease, the fact that four times as many recover after the Pasteur treatment as after other medical treatment, and nine times as many as after no treatment at all, is worth considering. Hydrophobia is probably the most terrible acute disease known to man. Fortunately, it is rare. Once well developed, it is practically incurable, though the one case reported in the Berlin statistics as recovering encourages a slight hope that even more may be done in the future.

The Bone Marrow as a Protecting Organ Against Infections.—The participation of the bone marrow in the defense of the organism against infections is well shown by the appearance of myelocytes in the blood when an infection is installed. Their presence or absence is an important element for the prognosis in pneumonia, for instance. Hoke of Prague has been studying this subject on animals, and reports his research in the *Zeitschrift f. Heilkunde,* XXV, No. 8. He considers it highly probable that macroscopic changes occur in the bone marrow likewise. Among his experiments were some in which he incorporated bone marrow in certain organs, simulating natural chemotactic processes, attempting in this way to demonstrate some direct action on the part of the bone marrow. His experiments are interesting, although not conclusive to date.

Praise for a Physician.—Some physicians and some medical publications occasionally have something to say about the lack of appreciation, among the laity, of the real worth of physicians. It is well to note such a tribute as the following, from the *New York Times:*

When Dr. Carlos Finlay talks about health conditions in Cuba he must be heard with as much confidence as respect, for to special knowledge acquired by many years residence in the island he adds a thorough familiarity with all the new information in regard to the relations between insects and fevers, and he has a peculiar reason for believing in the reality of that relation and acting in accordance with it. For he is the man who, years and years before more than one or two people, if any, had begun to look with suspicion on the mosquito as a possible carrier of disease, positively and publicly charged the creature with performing that ill-service in the case of yellow fever. This conclusion he seems to have reached by a sort of divination, for his facilities were not such as to permit him to prove his theory, and it was so novel, so contrary to all the accepted ideas as to the conveyance of the so-called malarial maladies, that his now famous paper attracted no attention at all except a few pitying smiles, and it was left for our own Army surgeons, as part of the army of occupation in Cuba after the war with Spain, to take up the matter in the light of discoveries made in India and Italy, and turn Dr. Finlay's unsupported assertion into an absolute demonstration. This gave him the best of rights to say, "I told you so," but he has done it as little as could be expected from a mere mortal, and has taken no pains at all either to win fame for himself as a discoverer or to diminish that of investigators who, however admirable their work, could not have claimed his complete originality.

Clippings from Lay Exchanges.—"To the medical reader," remarks the *British Medical Journal,* "there is often more excellent fooling in the daily newspapers than in the professedly comic journals. The fun is unintentional, of course, but that makes it all the better, for, as Mr. Barrie's humorist says, two persons are required for the prosperity of a jest—one to make it and the other to see it. On the death of Professor Finsen, a message from Copenhagen informed the world that the initiator of the light treatment had died of 'calcination of the pericardium.' Not long ago the *St. James' Gazette* gave Lord Lister the credit of having devised the method of 'healing by first intention,' a soft impeachment which, we are sure, the great surgeon would be unwilling to own. Another evening paper is responsible for the statement that 'hemophilia, or lust of blood, is a well-known sign of degeneration.' In the matter of comic medicine the British press must, however, yield the palm to American journalism." There are then quoted some of the humorous bits with which THE JOURNAL readers have been made familiar through our column entitled "Clippings from Lay Exchanges."

Tuberculosis and Soiled Linen.—S. Bernheim of Paris, in a communication to the recent French Congress of Internal Medicine, expatiated on the danger of contagion from the soiled linen of consumptives. The soiled clothing of the family is usually kept in permeable receptacles, and when sorted out to send to the laundry becomes a menace if any member of the family is tuberculous. The bundles are piled with those from other families, and the employes in the laundries are liable also to become infected. In fact, the employes in laundries supply the largest contingent to the clientèle of the antituberculosis dispensaries throughout the country. He advocates that soiled linen should be kept in airtight receptacles and sent to the laundry in impermeable bags, disinfected at

once on arrival. A still better measure would be to have a central city laundry where the linen from consumptives being treated at the special dispensaries should be laundered free, or at minimal rates. These simple measures would prevent many cases of new infection.

A Pure-Food Law.—In a paper by Dr. E. J. Lederle read at the International Congress of Arts and Science at St. Louis, attention was called to the fact that competition in trade has become so keen and the substitution of inferior constituents in foods so general that the honest manufacturer has hardly a chance to succeed. The paper also stated that the use of injurious preservatives is practiced to a scandalous extent, and that the only remedy for these conditions is the passage and enforcement of a federal pure-food law. The paper went on to state that the public in general does not understand the extent to which patent medicines and secret nostrums undermine the public health, and says that there has been little or no attempt made to assume official control over their production and sale. Dr. Lederle considers that makers of patent medicines should be required to place on each package or bottle the exact ingredients it contains, and should be prosecuted for any deviation which can be shown to be detrimental to the health of the persons using the remedy, or which is designed to perpetrate on them a commercial fraud.

Responsibility of Authors for Their Formulas.—The Lyons courts recently acquitted a physician who had made an injection of 40 gm. of a 5 per cent. solution of cocain with the consequent death of his patient. The operation was for the relief of hydrocele, and the patient succumbed in twenty minutes after the preliminary injection of the cocain. The physician stated that he had merely followed the directions in Tillaux' Manual of Clinical Surgery, second edition, page 411, which advised for such cases an injection of "about 30 grams of a 5 per cent. solution of cocain;" that is, a gram and a half of cocain. In the third edition, which followed three years later, Tillaux warned against large doses and advised "about 10 grams of a 1 per cent. solution," that is, 10 cgm. The necropsy revealed pleural adhesions which made any injection of cocain dangerous. The court acquitted the physician, stating that the citation from Tillaux' text-book freed him from responsibility. Professor Tillaux was president of the Paris Académie de Médecine at the time of his death last fall, which occurred not long after this legal decision. The *Journal de Méd. de Paris*, commenting on the affair, remarks that the decision evidently offers a precedent for holding the author of a book or formula responsible if the application of his formula entails any mishap. It doubts, however, if this precedent will be accepted in jurisprudence, as any physician making such an injection ought to know enough not to inject 2 gm. of cocain under any circumstances. "Our confidence in the works of the masters should not deprive us of our powers of judgment." A similar case was recently decided in Georgia. The proprietor of a patent medicine was sued for injuries by a person who had taken the medicine. The court held that the proprietor was responsible and stated that after careful search not only in the authorities quoted by counsel, but in others, no record of a similar question having been determined by any court could be found. The court held further: "If the contents of a medicine are concealed from the public generally, and the medicine is prepared by one who knows its contents, and he sells the same, recommending it for certain diseases and prescribing the mode in which it shall be taken, and injury is thereby sustained by the person taking the same, proprietor would be liable for the damage thus sustained. . . . These proprietary or patent medicines are secret, or intended by the proprietors to be secret, as to their contents. They expect to derive a profit from such secrecy. They are, therefore, liable for all injuries sustained by any one who takes their medicine in such quantities as may be prescribed by them. . . . He has a right to rely on the statement and recommendation of the proprietor, printed and published to the world; and if, thus relying, he takes the medicine and is injured on account of some concealed drug of which he is unaware, the proprietor is not free from fault, and is liable for the injury thereby sustained."

State Boards of Registration.

COMING EXAMINATIONS.

Illinois State Board of Health, The Great Northern Hotel, Chicago, January 19-21. Secretary, J. A. Egan, M.D., Springfield.

New York—Three Medical Boards, New York, Albany, Syracuse and Buffalo, January 24-27. H. J. Hamilton, Education Department, Albany.

New Hampshire State Boards, University Club, Concord, February 1-2. Regent, Henry C. Morrison, Concord.

Kansas State Board of Medical Registration and Examination, Topeka, February 14-15. Secretary, G. F. Johnston, M.D., Lakin.

Florida April and October Reports.—Dr. J. L. Niblack, secretary of the Board of Medical Examiners of the Third Judicial district, reports the oral examinations held at Live Oak, April 12 and Oct. 11, 1904. The total number of questions asked was 70; percentage required to pass, 75. Four persons were examined, all of whom passed. No averages were assigned by the board. The following colleges were represented: Tulane University, La., (1904); College of P. and S., Atlanta, Ga., (1903); Harvard University, (1903); Univ. of Pennsylvania, (1899).

Connecticut November Report.—Dr. C. A. Tuttle, secretary of the Connecticut Medical Examining Board, reports written examination held at New Haven, Nov. 9-10, 1904. The number of subjects examined in was 7; total number of questions asked, 70; the percentage required to pass, 75. The total number examined was 20, of whom 12 passed and 8 failed. The following colleges were represented:

College.	Year Grad.	Per Cent.
PASSED.		
College of P. and S., New York	(1904)	83.1
College of P. and S., Baltimore	(1904)	75.6
Yale	(1904) 82.2, (1903) 77,	79.8, 78.9
Cornell	(1898)	82.1
Baltimore Med. College	(1904)	80.1
Univ. of Naples, Italy	(1901)	75.8
Dartmouth Med. Coll.	(1903)	79.5
Univ. of Vermont	(1903)	79.9
Tufts Med. Coll.	(1903)	76.2
FAILED.		
Baltimore Med. Coll.	(1903)	58.8
College of P. and S., Baltimore	(1904)	73.5
Baltimore Medical College	(1904) 74.5, (1903)	74.7
Univ. of Naples, Italy	(1901)	73.6
Maryland Med. Coll.	(1904)	73.2
Univ. of Vermont	(1898)	70
College of P. and S., Boston	(1904)	73.8

Dr. C. A. Lindsley, secretary of the Connecticut State Board of Health, reports the written examination conducted by the examining committee of the Homeopathic State Medical Society at Hartford, Nov. 8-9, 1904. The number of subjects examined in was 8; total number of questions asked, 80; percentage required to pass, 75. Two persons were examined, 1 passed and 1 failed. Passed: Hahnemann Medical College, Philadelphia. Failed: New York Homeopathic Medical College and Hospital.

Georgia October Report.—Dr. F. D. Patterson, secretary of the regular Board of Medical Examiners of Georgia, reports the written examination held at Atlanta, Oct. 11, 1904. The number of subjects examined in was 10; total number of questions asked, 50; percentage required to pass, 75. The total number examined was 21, of whom 20 passed and 1 failed. The following colleges were represented:

College.	Year Grad.	Per Cent.
PASSED.		
Maryland Med. Coll.	(1904) 75, 75, 80, 81,	82
Univ. of Maryland	(1904) 83, 85, 87,	87
Univ. of Virginia	(1901)	85
Tulane University	(1904)	86
Johns Hopkins University	(1903) 86, (1904)	85
College of P. and S., New York	(1904)	88
Univ. of the South, Sewanee	(1900)	85
Meharry Med. Coll.	(1904)	79, 77
Med. Coll. of South Carolina	(1904)	84
Jefferson Med. Coll.	(1904)	79
Shaw Univ. Med. Dept.	(1904)	82
Boston University	(1878)	78
FAILED.		
Chattanooga Med. Coll.	(1895)	66

The following questions were asked:

CHEMISTRY.

Give the symbol, atomic weight and valence of each of five elements. Distinguish between the ide and ate terminations. Give formula for potassium chlorid and potassium chlorate. How many minims in one c.c. of water? What is a hydracid? An oxyacid? What is an empirical formula?

PHYSIOLOGY.

Give principal events in gastric digestion. Define blood pressure. State the factors which increase and decrease blood pressure. State, approximately, the amount of oxygen consumed and the amount of carbon dioxid produced in respiration in twenty-four hours. Describe the secreting structures of the kidneys. Give origin and distribution of sympathetic nerve fibers. Name the three classes into which its ganglia are divided.

MATERIA MEDICA AND THERAPEUTICS.

Give symbols of minims, fl. drams, fl. ounces, pint, gallon. Give difference between anesthetic and analgesic. Examples of each. (a) Define motor excitants; (b) name the most important; (c) therapeutics and doses. (a) Source of turpentine; (b) its composition; (c) action, external and internal; (d) its principal preparation; (e) therapeutics and doses. Write a prescription for gastric fermentation containing carbolic acid, bismuth subnitrate, glycerin, peppermint water.

GYNECOLOGY.

Describe the technic for a simple curettage; for curettage after an abortion, and for carcinoma which can not be removed radically. Describe an operation for lacerated perineum; for lacerated cervix. Describe an operation for cystocele, rectocele and prolapsed uterus to second degree. Give differential diagnosis between ectopic gestation, pyosalpinx and appendicitis. Name some of the causes of pelvic suppuration. State how you would treat an ovarian or tubal abscess attached to vaginal wall.

SURGERY.

Describe an amputation at lower third of the thigh. What is surgical shock, and how would you treat it? What is fracture; what is dislocation; how would you treat a compound, comminuted fracture of leg at its middle third? What is varicocele; hydrocele? Describe operation for both conditions. What is hernia? Describe an operation for radical cure of inguinal hernia.

PRACTICE.

Give etiology of poliomyelitis; (a) give some of the most prominent symptoms; (b) give location of lesion. Give the most distinguishing symptoms of smallpox; (a) give the three forms and types of each. Give etiology and treatment of lobar pneumonia. What is the essential cause of rachitis? (a) give treatment. Location of the lesions in acute dysentery in children; (a) give treatment.

OBSTETRICS.

Diagnose placenta previa: (a) describe method of treating same. Describe method of handling case of postpartum hemorrhage. Give method of handling puerperal eclampsia. Name the three stages of labor; (a) describe beginning and termination of each. Give the presumptive and certain signs of labor.

DIAGNOSIS.

What is vocal fremitus? What conditions: (a) increase vocal fremitus, (b) diminish vocal fremitus? Mention the aids to diagnosis that are of practical use in medicine and surgery. Describe the diagnostic characteristics of acute appendicitis. Differentiate rheumatic arthritis and joint tuberculosis. Differentiate acute cerebral meningitis from syphilitic gumma.

ANATOMY.

(a) Describe the frontal bone and (b) name its articulations. (a) Give the names of the muscles of the thigh and (b) state the origin, insertion and action of any one of the muscles mentioned. Describe the origin, course and distribution of the renal arteries. (a) Describe the portal system of veins and (b) give portal circulation. Describe the sympathetic nerve, naming and locating the principal ganglia. Give the anatomy of the skin and of its appendages.

PATHOLOGY.

Give pathology of interstitial nephritis. Define arthritis deformans, and give its morbid anatomy. Discuss the pathologic conditions in herpes zoster. Describe pus and give its essential elements. Name the bacteria usually associated with ordinary inflammation and suppurative processes.

Association News.

COUNCIL ON MEDICAL EDUCATION.

Meeting held in Philadelphia, Dec. 28, 1904.

A meeting of the Council on Medical Education of the American Medical Association was held at the Bellevue Stratford Hotel, Philadelphia, Dec. 28, 1904. The members of the council, all of whom were present, are Drs. A. D. Bevan, chairman, Chicago; V. C. Vaughan, Ann Arbor; J. A. Witherspoon, Nashville; W. T. Councilman, Boston, and C. H. Frazier, Philadelphia.

Dr. Witherspoon moved that Dr. George H. Simmons be asked to co-operate with the council and that Dr. J. H. Musser be regarded as a member ex-officio. Carried.

Dr. Vaughan moved that the council ask for a headquarters in the building of the American Medical Association in Chicago. Carried.

Dr. Witherspoon moved that Dr. Vaughan and the chairman constitute a subcommittee to confer with the Board of Trustees with reference to the appointment of a salaried secretary. Carried.

Dr. Vaughan moved that the secretary be instructed to tabulate the requirements for admission to medical colleges in those states in which it is fixed by statute. Carried.

Dr. Vaughan moved that the secretary be instructed to tabulate the requirements for admission to medical colleges as fixed by the state boards of medical examiners. Carried.

Dr. Vaughan moved that the secretary be instructed to tabulate the requirements for admission to medical colleges and the manner in which the credentials of preliminary education are received. Carried.

Dr. Witherspoon moved that the council draw up a scheme specifying the minimum requirements for the entrance to the study of medicine and the method whereby they shall be received.

Dr. Witherspoon moved that the secretary be instructed to ascertain and tabulate the length of the sessions in the various medical colleges. Carried.

Dr. Witherspoon moved that two subcommittees be appointed, one to report a scheme for the minimum requirements for admission to medical schools and the other a scheme on the curriculum. Carried.

The chairman appointed the following committees: Committee on preliminary education, Drs. Bevan, Vaughan and Witherspoon; committee on curriculum, Drs. Bevan, Councilman and Frazier.

Dr. Vaughan moved that the secretary be instructed to request each state board of medical examiners to send one representative to meet the council at its next meeting in Chicago. Carried.

It was decided that the chairman call a meeting of the council at Chicago, April 21 or 22, 1905.

Dr. Councilman moved that the surgeons general of the Army, of the Navy and of the Marine-Hospital Service be requested to send delegates to represent their respective services at the next meeting of the council and that they be informed as to the character of the information which the council desires. Adjourned.

NEW MEMBERS.

New members for the month of December, 1904:

ALABAMA.

Carleton, Wm. G., Dudleyville.
Curtis, R. C., Gansey.
Clements, H. C., Benton.
Coley, A. J., Alexander City.
Drake, J. H., Auburn.
Hays, Luther, Cullman.
Hiflin, H. T., Birmingham.
Harlan, A. L., Alexander City.
Jones, C. C., East Lake.
Manasco, Titus, Carbon Hill.
Milner, G. M., Goethite.
Pugh, Francis F., Brookside.
Prissly, H. E., Birmingham.
Peter, Thos. M., Fayette.
Thomas, M. C., Belle Ellen.
Twitty, F. S., Columbia.
Webb, Alfred P., Atmore.
Watkins, Jas. P., Opehika.

ARIZONA.

Lennox, J. W., Tuscon.
Schrader, C. A., Tuscon.

ARKANSAS.

Bills, A. R., Sulphur Springs.
Caruthers, C. K., Pine Bluff.
Eason, J. T., Grand Lake.
Early, C. S., Camden.
Graves, G. W., Pleasant Plains.
March, C. J., Fordyce.
Penn, G. E., Marvell.
Ross, Chas. J., Caglesville.
Reves, W. B., Alma.
Stearns, Moses, Springdale.
Snodgrass, W. A., Little Rock.
Withers, J. W., Pine Bluff.
Woods, G. G., Huntington.

CALIFORNIA.

Arbogast, J. L., St. Helena.
Armstrong, M. M., Los Angeles.
Anderson, L. S., San Francisco.
Beerman, W. T., San Francisco.
Benepe, J. L., San Jose.
Barmore, W. A., Santa Rosa.
Burgess, O. O., San Francisco.
Briggs, Solon, Pasadena.
Bowerman, A. C., Brentwood.
Blake, Chas. R., Atchison.
Burchard, L. S., Oakland.
Bauter, Lucian A., Redding.
Cooper, Chas. M., San Francisco.
Crowder, Henry C., Tracy.
Dresser, Ralph O., Paso Pobles.
Dorais, Louis P., Eureka.
Ellinwood, C. N., San Francisco.
Ellis, S. A., Azusa.
Fiske, H. A., Pasadena.
Fitzgerald, W. W., Stockton.
Fish, C. W., Los Angeles.
Freeman, W. F., Needles.
Foster, N. K., Sacramento.
Galehouse, Frank C., Fresno.
Green, N., Watsonville.
Gatchell, Ella F., Chico.
Grosse, A. B., San Francisco.
Hirschfelder, A. D., San Francisco.
Hitchcock, Wm. W., Los Angeles.
Hawkins, G. A., Reedley.
Harbirk, E., Stockton.
Hoffman, L. H., San Francisco.
Irey, J. T., Lakeside.
Jenkins, J. F. T., Los Angeles.
Keyes, Henry S., Los Angeles.
Kerr, Wm. J., Sebastopol.
Lehr, Stella R., Berkeley.
McArthur, Wm. T., Los Angeles
Moyer, J. J., Mayfield.
Mallory, G. W., Santa Rosa.
O'Brien, E. S., Merced.
Parker, John, Salinas.
Peers, R. A., Colfax.
Porter, Geo. C., Hollister.
Porter, Wm. S., Oakland.
Phelan, Henry Du R., San Francisco.
Reinle, Geo. E., Oakland.
Rogers, A. C., Los Angeles.
Shults, Jas. H., Los Angeles.
Simpson, Frank Wm., San Francisco.
Stibbens, F. H., San Francisco.
Smith, Dudley, Oakland.
Salomon, D. M., San Francisco.
Southworth, H. E., Stockton.
Todd, Thos. M., East Auburn.
Thiell, Wm. C. A., Los Angeles.
Trew, Niel C., Los Angeles.
Taltavall, Wm. A., Redlands.
Wallace, A. H., Fresno.
Wilson, C. G., San Francisco.
Wing, H. B., Los Angeles.
Ward, M. W., Woodland.
Wood, G. N., Blue Lake.
Yates, Elizabeth M., Santa Rosa
Zuill, Wm. L., Pasadena.
Zachariah, S. R., San Francisco.

COLORADO.

Hanson, K., Grand Junction.
Jones, Robert, Ft. Morgan.
Law, G., Greeley.
Stadler, Lester C., Ouray.

CONNECTICUT.

Brooks, M. J., New Canaan.
McFarland, David W., Green's Farms.
Steadman, W. G., Southington.

Snow, F. L., Hartford.
Stretch, James, Stafford Springs.
Tiffany, Frank M., Stamford.
Welch, Ed. H., Winsted.
Walsh, Thos. P., Middletown.
Waite, F. L., Hartford.
Witter, O. B., Hartford.

DELAWARE.

Downs, P. J., Dover.
Skinner, T., Glasgow.

DISTRICT OF COLUMBIA.

Belknap, J. L., Washington.
Grayson, C. T., Washington.
McDonnell, W. N., Washington.
McAdory, Robert J., Washington.
Walker, Allen, Washington.

FLORIDA.

White, W. C., Live Oaks.
Wilson, Percy B., Sneads.
Van Valzah, J. A., Daytona.

GEORGIA.

Edwards, W. E., Cordele.
Gheesling, J. H., Greensboro.
Humphries, W. C., Acworth.
Oliveros, B. F., Savannah.

ILLINOIS.

Anten, F. E., Belleville.
Ashton, L. B., Quincy.
Arnold, B. A., Freeport.
Baker, John W., West York.
Ballance, H. A., Peoria.
Brengle, Geo. C., Winchester.
Blackwelder, J. F., Litchfield.
Brown, Geo. W. I., Dixon.
Blount, Anna E., Chicago.
Bower, R. W., Sheridan.
Brown, Curtis, Marion.
Baxter, Geo. E., Jacksonville.
Crutcher, Howard, Chicago.
Coy, R. E., Rockford.
Campbell, Wm. A., Chicago.
Corbus, J. C., Kankakee.
Curtis, W. H., Wilmington.
Darragh, E., Winnetka.
Dowdall, Guy G., Clinton.
Van de Roovart, J. F., Chicago.
Doepfner, Karl, Chicago.
Davidson, T. W., Oneida.
Dixon, W. A., Decatur.
Dunn, B. B., Perry.
Edwards, F. M., New Bador.
Ellis, J. P., Augusta.
Fletcher, W. R., Joliet.
Foulds, Thos. L., Alton.
Fletcher, J. R., Winnetka.
French, Z. D., Lawrenceville.
Fish, Wm. B., Oak Park.
Gelder, E. E., Peoria.
Grosvenor, W. F., Chicago.
Green, R. E., Chicago.
Gernon, J. H., Beaverville.
Hollands, L. F., Wheaton.
Hendricks, W. W., Bardolph.
Hardt, H. G., Hospital.
Holleman, P. W., Chicago.
Hamilton, R. J. C., Chicago.
Jentzsch, R., Chicago.
Kretsinger, J. F., Leaf River.
Keith, L. S., Towando.
Keyes, R. H., Hopedale.
Kirby, Wm. Thos., Chicago.
Kinloch, J. A., Chicago.
Krenser, T. A., Chicago.
Kanavel, Allen B., Chicago.
Landon, D. W., Quincy.
Lewis, J. V., Momence.
Leenneer, C. A., Chicago.
Lesage, Chas. A. E., Dixon.
Laugeay, S. M., Fayetteville.
Murphy, H. A., Sumner.
Marquis, B. V., Buffalo Prairie.
McConnell, R. J., Bayles.
MacLellan, Chas., Chicago.
Moorhead, J. J., Chicago.
Moorhead, E. L., Chicago.
Matson, Wm. F., Monticello.
Martin, Wm. B., Sheward.
McClanahan, Jas. M., Kirkwood.
Maury, J. M., Wheaton.
Millen, Wm. A., Marcelinea.
Moon, W. B., Bellmont.
Meirink, B. J., Germantown.
McNeill, I., Newman.
Nelms, J. N., Taylorville.
Noble, W. L., Chicago.
Owens, E. B., Dixon.
O'Malley, W. H., Kinsman.
Orr, Jesse A., Metropolis.
Patera, F. J., Chicago.
Perkins, J. B., Franklin.
Pischczak, J., Chicago.
Pigall, Jos. S., Chicago.
Root, J. W., Kilbourne.
Ragesdale, A. C., Metropolis.
Reid, L. W., Fairmount.
Reid, Anthony, Chicago.
Reticker, J. K., Quincy.
Roberg, O. T., Chicago.
Silverberg, G. M., Chicago.
Sprouse, J. G., Greenview.
Sorby, E. A., River Forest.
Spiece, Wm. H., Chicago.
Stolp, B. C., Wilmette.
Santee, H. E., Chicago.
Sammons, E. H., Chicago.
Senmott, J. S., Waterloo.
Strauss, F. L., Chicago.
Tucker, Chas. E., Joppa.
Tidball, J., Grafton.
Taylor, F. C., Granville.
Vasumpam, J., Chicago.
White, David A., Little York.
Welch, Chas., Ramsey.
Wozley, Chas. A., Brookport.
Walton, J. E., Medora.
Williams, S. E., New Bedford.
Wilkinson, C. E., Danville.
Zimmermann, C., East St. Louis.

INDIANA.

Allen, Chas. B., North Salem.
Amerman, Chas. A., Dugger.
Andrews, John R., River Vale.
Benham, C. W., Vincennes.
Brannon, G. D., Crown Point.
Bottorff, J. C., Corydon.
Buley, D. W., Vincennes.
Bradley, J. S., Hall.
Close, Thos. H., Scottsburg.
Cummer, W. M., Bloomington.
Epperson, A., South Bend.
Hervey, M. E., Richmond.
Hudelson, L. R., Milroy.
Hiatt, J. E., New Castle.
Hebble, D. W., Terre Haute.
Johnston, A., Akron.
Jenkins, J. R., Shelbyville.
Johnson, P. S., Richmond.
King, M. O., Rochester.
Loop, A. L., Economy.
Miller, C. E., Muncie.
McClain, Wm. L., Scottsburg.
Price, R. C., Monroeville.
Slonaker, C. L., Leiters Ford.
Sparks, J. T., Yeddo.
Sheperd, V., Dupont.
Weaver, B. P., Ft. Wayne.
Walsh, D. W., Mt. Vernon.
Willis, Jos H., Evansville.

IOWA.

Ayres, Ed. C., Larimor.
Arenschield, E. M., Ottumwa.
Armitage, G. I., Hopeville.
Caldwell, A. F., Shenandoah.
Cross, J. R., Foster.
Dewitt, F. F., Berea.
Ely, Wm. E., Ocheyedan.
Greer, B. A., Lamourl.
Hough, F. S., Sibley.
Hombach, W. P., Council Bluffs.
Meyer, H. E., Belmond.
Mason, H. P., Wilton Jct.
Meyer, V. J., Portsmouth.
Parker, E. W., Sutherland.
Parrish, W. O., Osceola.
Stockton, Chas. H., Keokuk.
Sievers, H. H., Tama.
Swezey, B. F., McCausland.
Tinsman, E., Orient.

KANSAS.

Bartley, C. P., Spearville.
Ferguson, O. S., Atchison.
Newton, W. B., Glasco.
Priest, W. R., Concordia.
Scott, John R., Garnett.

KENTUCKY.

Boone, J. C., Wickliffe.
Brown, S. S., Mountain Ash.
Clark, J. H., Bonnieville.
Carr, W. H., Claysville.
Coons, A. B., Newtown.
Earle, B. P., Charleston.
Ford, R. L., Livermore.
Godshaw, C. C., Louisville.
Garr, Chas. R., Flemingsburg.
Gray, Jas. R., Elizabethtown.
Hale, J. L., Wickliffe.
Hermann, Geo. J., Newport.
Hopper, W. O., Perryville.
Irvine, J. F., Tolesboro.
Jones, Theo. L., Will Springs.
Lock, Jas. S., Barbourville.
MacCracken, W. H., Bowling Green.
McCarthy, Chas. W., Fordsville.
Montgomery, F. H., Danville.
Ransom, M. G., Morganfield.
Reesor, J. H., Stithton.
Ranshaw, W. W., Covington.
Ribelin, Thos., Elizaville.
Sleet, Wm. E., Midway.
Salin, W. B., Owenton.
Stoltz, M. P., Louisville.
Treadway, L., Heidleberg.
Van Arsdall, C. B., Harrodsburg.
Winston, I. D., Sturgis.
Withersnoon, E. O., Louisville.
Wellingham, E. B., Cunningham.

LOUISIANA.

Brown, F. R. Ganzales.
Berwick, J. C., Berwick.
Colomb, B. A., Union P. O.
Couvillion, W. F., Marksville.
Gill, E. W., Gueydan.
Lemoine, B. J., Cottonport.
May, R. L., Baskin.
Wheaton, E., Gueydan.
Wren, R. B., Rayville.

MAINE.

Chenery, F. L., Wayne.
Ferris, H. R., Oxford.
Hamlet, F. S., Gorham.
Smith, A. R., Portland.
Stevens, T. H., Tenants Harbor.
Smith, A. K. P., Bradford.
Taylor, F. J., Pittsfield.
Wakefield, J. M., Warren.
Wood, A. M., Lentner.

MARYLAND.

Bowen, J. S., Mt. Washington.
Brown, F. S., Baltimore.
Browning, R., Myersville.
Eareckson, Wm. R., Elk Ridge.
Henkel, L. B., Annapolis.
Horn, Aug., Baltimore.
Keidel, A., Baltimore.
Ligget, J. J., Ladiesburg.
Maynard, S. S., Frederick.
McCleary, S., Baltimore
Owings, L. G., Ellicott.
Rosenheim, S., Baltimore.
Wright, J. J., Warwick.
Wolff, E. E., Cambridge.

MASSACHUSETTS.

Andrews, E. A., Newton Center.
Butler, R. B., Fall River.
Barry, E. W., Whilinsville.
Badger, G. S. C., Boston.
Crandon, L. R. C., Cambridge.
Dadnum, E. J., Boston.
Downey, J. F., Springfield.
Dwineil, W. G., Boston.
Fleming, P. J., Roxbury.
Foster, R. W., Lawrence.
Fiske, Chas. N., Chelsea.
Galvin, A. H., Dorchester.
Gould, C. S., Norwood.
Griffin, F. S., Newton Lower Falls.
Griffin, W. A., Sharon.
Holden, N., Southampton.
Hall, J. B., Jr., Boston.
Lynch, C. J., Quincy.
McBain, Wm. H., Malden.
Mahoney, G. C., Somerville.
Mercer, W. J., Pittsfield.
Nute, M. N., Dorchester.
Parks, E. L., Boston.
Russell, E. E., North Adams.
Spaid, C. J., Springfield.
Stiles, F. M., Waltham.
Sears, G. G., Boston.
Torrey, J. P., Andover.
Tirrell, V. M., South Weymouth.
Taylor, E. H., Pittsfield.
Waterman, G. A., Boston.
Wylie, E. R., Boston.

MICHIGAN.

Aaron, Charles D., Detroit.
Bunch, G. H., Kearsarge.
Boss, R. D., Wascousta.
Binning, D. E., Schoolcraft.
Buckham, J. N., Flint.
Clippert, F. J., Delray.
Clarke, H. E., Polisc.
Dunlap, Wm., Detroit.
Ennes, C. J., Sault Ste. Marie.
Elskine, E., Rogers City.
Edwards, S. P. S., Battle Creek.
French, G. E., Wells.
Gibson, F. J., Jackson.
Hoim, Aug., Ashton.
Hall, B. C., Pompeii.
Kiefer, Guy L., Detroit.
Kingsley, A. F., Centerville.
Kassabian, W. H., Coopersville.
McCall, D. J., Elkton.
Munro, C. D., Jackson.
Osborn, S., Ann Arbor.
Ransom, T. H., Bloomingdale.
Thomson, A., Adair.
Town, L. S., Geneva.
Taylor, A. L., Middleville.
Thoms, T. M., Lansing.
Wells, M., St. Johns.
Whitmore, H. W., Quincy.
Wheeler, F. D., Detroit.

MINNESOTA.

Bessasan, A. N., Minneapolis.
Baxter, S. H., Minneapolis.
Clement, L. O., Lamberton.
Davis, L. A., Dalton.
Drenning, F. C., Duluth.
Flower, W. Z., Gibbon.
Fjelstad, C. A., Glenwood.
Gilmore, R., Bemidji.
Gunnz, A. N., Center City.
Gravelle, J. M. A., St. Paul.
Haggard, G. D., Minneapolis.
Jenson, T., Spring Grove.
Kreidt, D., Minneapolis.
King, Emil, Fulda.
Lockwood, S. O., Minneapolis.
Le Clerc, J. E., Le Sueur.
Lee, Wm. P., Fairfax.
Moen, J. K., Windom.
Mead, M. A., Minneapolis.
Moore, W. J., Wood Lake.
Strout, George E., Winthrop.
Stevens, F. A., Lake Elmo.
Stone, Wm. F., Park Rapid.
Seashore, G., Minneapolis.
Stlevle, A., Rush City.
Taustrom, I., Center City.
Vibrance, G. C., Watkins.
Woodworth, E. A., Minneapolis.
Zelen, Thomas, North Branch.

MISSISSIPPI.

Abston, J. T., Hickory Flat.
Bethea, J. J., Seminary.
Coleman, J. E., Doddsville.
Feemster, L. C., Nettleton.
Hunnicutt, W. J., Poplarville.
Harris, J. B., Stewart.
Meyers, T. J., Shelby.
Mathis, E. J., Quitman.
Partin, E. B., Chunky.
Rainold, M. W., Pass Christian.
Thompson, W. G., Enid.

MISSOURI.

Asher, J. A., Trenton.
Bush, F. W., Hannibal.
Barnet, A. D., Guilford.
Clopton, M. B., St. Louis.
Chaffin, W. F., Raymore.
Dryden, U. C., Purdin.
Davis, A. W., Kansas City.
Farmer, P. J., St. Louis.
Foster, H., Kansas City.
Ferguson, W. J., Sedalia.
Greenfelder, H., St. Louis.
Griffin, P. H., St. Louis.
Griffin, J. M., Millville.
Harrison, A., Lees Summit.
McComb, J. L., Kenoma.
Mitchell, E. H., Pottersville.
Milnes, G. S., Milan.
Owens, F. C., Agency.
O'Dell, T. T., Ellington.
Stevens, R. N., Chillicothe.
White, A., Lakenan.

MONTANA.

Taylor, W. W., Kalispell.
Watkins, C. F., Billings.

NEBRASKA.

Ackley, W., Juniata.
Benington, G. A., Schuyler.
Bellwood, H. H., Alliance.
Hoyt, S. H., Omaha.
Marble, R. R., Hastings.
Magill, J. S., Gilead.
McNulty, J. F., Callaway.
Robinson, C., Pender.
Salter, P. H., Norfalk.
Stretton, H. H., Chester.
Talbott, W. E., Broken Bow.
Ward, A. A., Brady Island.
Womsley, L. B., West Union.

NEW JERSEY.

Arlitz, Wm. J., Hoboken.
Beach, E. M., West Long Beach.
Heintzelman, B. S., Bayonne.
Jedel, M., Newark.
Leonard, I. E., Atlantic City.
Matthews, H. E., Orange.
Read, C. H., Trenton.
Squier, M. T., Harrison.

NEW YORK.

Benedict, A. C., New York.
Barrick, C. W., Buffalo.
Bates, Wm. H., Brooklyn.
Fleming, M. J., New York.
Gilley, Wm. C., New York.
Goodrich, C. H., Brooklyn.
Gallager, E. J., Kingston.
Holding, A. E., Kingston.
Howell, J. T., Newburgh.
Hasbrouck, C. V., Rosendale.
Joyce, R. A., New York.
Keator, H. C., Rosendale.
Mandlebaum, F. S., New York.
Peck, M. R., New York.
Rostenberg, A., New York.
Radin, H. T., New York.
Sheffield, H. B., New York.
Van Loon, J. C. P., New York.
Wright, M. C., Mt. Vision.

NORTH DAKOTA.

Brenckle, J. F., Kulm.
Fernald, A. M., Sutton.
Patterson, C. F., Rye.
Saltmarsh, G. H., Lakeport.

OHIO.

Anzinger, F. P., Springfield.
Bookwallie, H., Columbiana.

Bates, F. L., Lima.
Brown, C. G., Mansfield.
Bailey, H. E., Swanton.
Black, J. F., Cleveland.
Cunningham, S. A., Mariette.
Carpenter, L. F., Cincinnati.
Colter, L. S., Cincinnati.
Carey, M. J., Cleveland.
Clark, H. F., Barden.
Drennen, J. N., Loydsville.
Ford, S., Cincinnati.
Good, I. L., Bellevue.
Gilmore, Wm. N., Lisbon.
Grafe, F. A., Cincinnati.
Gavin, F. W., Canton.
Gowing, W. A., Toledo.
Howley, C. A., New Paris.
Hartley, F. A., Byhalia.
Hazelton, H. M., Lancaster.
Hosick, W. R., Newcomerstown.
Keidler, A. G., Cincinnati.
Kistler, H. B., Sunbury.
Matthews, J. W., Buford.
McVay, F. P., Athens.
McGee, W. C., Vanlue.
McLeod, C. D., Chatfield.
Metcalfe, B. F., Greenville.
McDiarmid, N. L., Dayton.
Metzler, W. M., Vanlue.
Michlethwait, W. D., Portsmouth.
Oswald, B. F., Cleveland.
Russell, J. E., Mt. Vernon.
Sutter, F. B., Shelby.
Shank, R. R., Trotwood.
Sater, P. M., Gratis.
Selby, C. D., Cleveland.
Thompson, W. R., Troy.
Upson, G. D., Cleveland.
Whitaen, M., Cincinnati.
Wilson, E. M., Portsmouth.

OKLAHOMA.

King, Wm. M., Oklahoma City.
Levi, M. H., Elk City.
Lile, H. A., Aline.
Rector, N., Hennessey.
Standifer, T. E., Busch.

OREGON.

Evin, W. H., Union.
Jarnagin, M. E., Coburg.
Pilkington, R. J., Astoria.

PENNSYLVANIA.

Brumbaugh, A. S., Altoona.
Cadwallader, E. W., Philadelphia.
Cooley, J., Sandy Lake.
Chapin, F. S., Erie.
Curry, E. A., Danville.
Colcord, J. B., Port Allegany.
Colley, B., Dunbar.
Douchoo, J. F., Washington.
Downton, E. W., Starrucca.
Dodds, C. F., Washington.
Dutton, W. F., Walkers Mills.
Emmerling, C., Pittsburg.
Echard, T. B., Connellsville.
Everett, M. A., Scranton.
Fisher, H., Philadelphia.
Ferguson, G. M., Philadelphia.
Fredricks, W. J., Bradford.
Gass, H. W., Sunbury.
Graves, E. A., Coatesville.
Hoon, A. J., Mercer.
Hahn, J. N., Bath.
Hall, Wm. T., Tarentum.
Hays, M. J., Kane.
Hess, R. J., Philadelphia.
Hoover, B. A., Wrightsville.
Herr, B. F., Millersville.
Jenkins, J., Scranton.
Koch, V. F., Nazareth.
Kunkel, G. B., Harrisburg.
Knorr, J. K., Jr., Philadelphia.
Klotz, R. B., Lehigh.
Larkin, P. A., Uniontown.
Loeh, V. A., Philadelphia.
Le Roque, P. J., Philadelphia.
Lillibridge, Alice, Olyphant.
Lowman, J. B., Johnstown.
Mutschler, L. H., Philadelphia.
McConnell, E. M., Grove City.
Marvin, M. E., Luzerne.
Meyers, E. H., Wilkesbarre.
Newlin, A., Philadelphia.
Perdue, W. R., Unionville.
Peck, E. L., Philadelphia.
Peck, W. A., Scranton.
Ritter, H. T. M., Allentown.
Righter, H. M., Philadelphia.
Raudenbush, J. S., Philadelphia.
Stewart, W. C., Johnetta.
Snively, A. B., Waynesboro.
Scott, J. Y., Washington.
Smith, C. H., Parksburg.
Sprage, Charles W., Waynesbury.
Smith, E. A., Snydertown.
Schaeffer, E. D., Reading.
Stottler, F. R., Wilkinsburg.
Snodgrass, B. B., Rochester.
Tunis, J. P., Philadelphia.
Westman, A. A., Tannersville.
Wister, T. W., Germantown.
Wright, J. H., Allegheny.
Weygandt, W. W., Thomas.
Williamson, T. H., Allegheny.
Wilkins, J. C., Oil City.

RHODE ISLAND.

Baxter, J. J., Woonsocket.
Hawkes, C. E., Providence.
Moore, J. S., East Providence.
Smith, H. W., North Satuati.

SOUTH CAROLINA.

Bouner, L. F., Blackville.
Cheyne, W., Sumter.
Gillard, W. M., Plantersville.
Rosmond, J. O., Easley.
Stuckey, H. M., Sumter.
Tompkins, J. G., Edgefield.

SOUTH DAKOTA.

Klovatad, A., Yankton.
Line, W. M., Aberdeen.
Lockwood, J. H., Wolsey.
O'Toole, C. S., Vienna.

TENNESSEE.

Bosworth, B. D., Knoxville.
Brasfield, S. W., Humboldt.
Bell, C. B., Nashville.
Doyle, A. N., Columbia.
Denton, S., Buffalo Valley.
Marshall, C. C., Hornbeck.
Perry, R. S., Columbia.
Reese, H., Gallatin.
Shelton, E. A., Graysville.
White, S. W., Franklin.
Yongue, S. D., Obion.

TEXAS.

Arnecke, C. A. H., Arneckville.
Anderson, S. J., Brady.
Baldwin, B. H., Harnack.
Black, J. T., Elroy.
Buster, A. O., Celina.
Barnes, F. L., Groveton.
Cherry, T. T., Timber.
Campbell, W. R., Chappen Hill.
Carter, W. W., Leland.
Casey, Z. N., Albany.
Davidson, G. L., Wharton.
Drisdale, Wm. E., Yoakum.
Frechet, E. A., Hockheim.
Grant, C. B., Graham.
Hammond, J. S., Noble.
Halley, W. B., Ballinger.
Herrington, J. L., Mullin.
Harris, M. W., Bivins.
Howe, T. G., Douglasville.
Jenkins, F. H., Howard.
Jackson, C. M., Frankford.
Lowry, Wm., Guy.
Leonard, J. W., Peters.
McMillan, J. D., Paris.
Martin, A. E., Bonham.
Miller, T. A., Corsicana.
Morgan, W. M., McMahon.
Oliver, J. P., Caldwell.
Patton, O., Midway.
Rimmer, S. W., San Saba.
Stone, T. E., Jasper.
Smith, B. J., Houston.
Stroud, A. D., Henderson.
Schnell, J. H., Comfort.
Seymour, F. B., Beeville.
Stein, D. Y., Slidel.
Tappington, J. B., Oakhill.
Townsend, E. D., Llano.
Weber, W. G., Round Rock.
White, W. P., Henderson.
Watkins, C. R., Floresville.
Watts, S. A., Moffat.
Walker, Wm. H., Oakland.
Woodward, S. A., Carthage.
Zachry, G. R., Talpa.

UTAH.

Steele, F. B., Salt Lake City.
Smedley, R. C., Bingham.
Wherritt, W. R., Heber.

VERMONT.

Badger, F. D., Coventry.
Campbell, C. M., Rochester.
Hodgkins, C. L., Castleton.
Hoyt, E. F., Sandgate.
Hubbard, N. V., Barnard.
McArthur, J. H., East Barre.
McMahon, P. H., Burlington.
Nowlan, I. L., South Strafford.
Ranks, W. H., Shelburne.

VIRGINIA.

Burwell, Z. C. A., Salem.
Crockett, M. B., Knob.
Cockrell, L. E., Reedville.
Dunlap, J. C., Middlebrook.
Early, J. L., Galas.
Field, A., Gilmerton.
Forrer, D. A., Richmond.
Innes, W. J., Brookneal.
Moore, S. B., Alexandria.
Neff, J. H., Harrisonburg.
Tucker, C. C., Roanoke.
Wright, F. J., Fork Union.
Younger, E. F., Blackwood.

WASHINGTON.

Keylor, H. R., Walla Walla.

WEST VIRGINIA.

Bush, A. A., Berlin.
Baber, J. H., Finlow.
Bullard, R. H., Wheeling.
Fansler, M. J., Rowlesburg.
Gilchrist, T. L., Pickaway.
Haynes, W. N., Boomer.
Hutchins, W. S., Wheeling.
Howle, P. W., Mt. Carbon.
Love, R. W., Moorefield.
Moss, V. R., Barboursville.
Post, W. H., Delislaw.
Wilson, M. S., Wildell.
Wilson, W. C. L., Mannington.

WISCONSIN.

Aylward, R. C., Star Lake.
Boothby, E. L., Hammond.
Brown, F. W. A., Oshkosh.
Braun, O., Ashland.
Bradbury, E. L., Nellisville.
Brewer, J. B., Jefferson.
Beust, M. V., La Crosse.
Buckland, R. H., Princeton.
Combacker, H. E., Osceola.
Corr, A. B. S., Juneau.
Crum, J. A., Oshkosh.
Christiansen, E. S., Two Rivers.
Clark, B., Oshkosh.
Dyer, W. O., Neshkoro.
Eicher, Wm. B., Bonduel.
Foley, F. P., Neshkoro.
Foulds, R. F., Abrams.
Force, O. O., Pardeeville.
Gunther, E., Sheboygan.
Harris, Wm., Waukesha.
Horn, C. P., Luck.
Huribut, C. J., Omro.
Hastings, T. W., Limeridge.
Johnson, J. C., Ogdensburg.
Kreutzer, A. G., Cedarburg.
Leith, S. S., Junction City.
Miller, T. H., Maiden Rock.
Mathiesen, J., Whitehall.
Martin, George, Baldwin.
McDonald, R. J., Doylestown.
Netter, Wm., Sturgeon Bay.
Pinkerton, W. T., Prairie du Chein.
Potter, R. P., Auburndale.
Philler, H., Waukesha.
Provost, A. J., Oshkosh.
Rathbun, J. W., Prairie du Chein.
Richards, C. A., Rhinelander.
Simons, H. R., Sturgeon Bay.
Smith, P. H., Racine.
Webster, F. E., Amherst.
Walbridge, J. S., Berlin.

PHILIPPINE ISLANDS.

Wheate, J. M., Lucena.

The Public Service.

Army Changes.

Memorandum of changes of stations and duties of Medical officers, U. S. Army, for the week ending Jan. 7, 1905:

Siler, Joseph F., asst.-surgeon, relieved from duty at Fort Logan, Colo., and ordered to Fort Meade, S. D., for duty.

Devereux, J. R., asst.-surgeon, relieved from duty at Fort Meade, S. D., and ordered to Fort Logan, Colo.

Reilly, John J., asst.-surgeon, ordered to proceed from Jackson Barracks, La., U. S. Army General Hospital, Fort Bayard, N. M., for treatment.

Mearns, E. A., surgeon, granted thirty days' leave, to take effect on expiration of his present sick leave.

Geer, Charles C., asst.-surgeon, retired from active service on account of disability incident thereto.

Owen, W. O., surgeon, ordered to Fort Leavenworth, Kan., for examination by an army retiring board.

Byrne, Charles B., asst. surgeon general, detailed member of army retiring board to meet at Fort Leavenworth, Kan., vice Lieutentant Colonel George W. Adair, deputy surgeon general, relieved.

Yost, John D., asst.-surgeon, relieved from duty at San Francisco and ordered to Honolulu, H. T., for duty, relieving Major William B. Davis, surgeon.

Davis, William B., surgeon, relieved from duty at Honolulu, H. T., and ordered to Philippine Islands for duty.

Woodson, R. S., asst.-surgeon, relieved from duty at Fort Clark, Texas, and on discharge from Army and Navy General Hospital, Hot Springs, Ark., ordered to Fort McDowell, Cal., for duty.

Farr, Charles W., asst.-surgeon, in addition to his present duties will perform the duty of attending surgeon, San Francisco.

Wall, Francis M., contract surgeon, granted leave of absence for ten days.

McCall, James H., contract surgeon, ordered from Fort Moultrie, S. C., to Key West Barracks, Fla., for temporary duty.

Burr, Rollin T., contract surgeon, granted an extension of seven days to his leave of absence.

Hayes, Melville, A., contract surgeon, ordered to Vancouver Barracks, Wash., for duty at the expiration of his present leave of absence.

Bell, Leonard P., Hansen, Morris J., and Tuttle, George B., contract surgeons, sailed December 31 on the transport *Thomas* from San Francisco for Philippine service.

Navy Changes.

Changes in the medical corps, U. S. Navy, for the week ending Jan. 7, 1905:

Payne, J. H., P. A. surgeon detached from the *Marietta* and ordered home to wait orders.

Ross, John W., medical director, to be placed on the retired list Jan. 11, 1905, under provisions of Section 1444, Revised Statutes, on which date he will reach the age of 62 years. He is ordered to continue duty with the Isthmian Canal Commission after retirement.

Steele, John N., surgeon, detached from the Naval Recruiting Station, Baltimore, and ordered to the *Colorado*.

Elmer, M. K., asst.-surgeon, detached from the *Hancock* and ordered to the Naval Hospital, New York, for treatment.

McMurdo, P. F., A. A. surgeon, detached from the Navy Yard, League Island, Pa., and ordered to the Naval Recruiting Station, Baltimore.

Ferebee, N. M., medical director, having been examined by a retiring board and found incapacitated for active duty, on account of physical disability incident to the service, retired from active service Dec. 31, 1904, under Section 1453, Revised Statutes.

Public Health and Marine-Hospital Service.

List of changes of station and duties of commissioned and noncommissioned officers of the Public Health and Marine-Hospital Service for the seven days ending Jan. 4, 1905:

Brooks, S. D., surgeon, to report on Jan. 10, 1905, to chairman

of board of examiners at Fort Stanton, N. M., for the purpose of determining his physical condition.

Nydegger, J. A., P. A. surgeon, granted leave of absence for seven days from Dec. 25, 1904, under Paragraph 191 of the Regulations.

Greene, J. B., P. A. surgeon, granted extension of leave of absence for seven days from Jan. 3, 1905.

Lumsden, L. L., P. A. surgeon, relieved from duty at the Immigration Depot, New York, and directed to proceed to Philadelphia and report to the medical officer in command for duty.

Salmon, T. W., asst.-surgeon, relieved from duty at Philadelphia and directed to proceed to the Immigration Depot, New York, and report to Surgeon G. W. Stoner for duty.

Gregory, G. A., A. A. surgeon, granted leave of absence for seven days from December 30.

Linley, W. J., A. A. surgeon, granted leave of absence for thirty days from Jan. 16, 1905.

Wakefield, H. C., A. A. surgeon, granted leave of absence for three days under Paragraph 210 of the Regulations.

Brown, F. L., pharmacist, granted leave of absence for thirteen days from December 19, 1904. Granted extension of leave of absence for two days from Jan. 1, 1905.

BOARDS CONVENED.

Board convened to meet at Washington, D. C., Jan. 5, 1905, for the physical examination of candidates for the position of second assistant engineer, Revenue-Cutter Service. Detail for the board: Asst.-surgeon General G. T. Vaughan, chairman; Asst.-surgeon A. J. McLaughlin, recorder.

Board convened to meet at Fort Stanton, N. M., Jan. 10, 1905, for the purpose of making a physical examination of Surgeon S. D. Brooks. Detail for the board: Surgeon P. M. Carrington, chairman; Asst. surgeon Norman Robert, Asst.-surgeon H. G. Ebert, recorder.

Health Reports.

The following cases of smallpox, yellow fever, cholera and plague have been reported to the Surgeon General, Public Health and Marine Hospital Service, during the week ended Jan. 6, 1905:

SMALLPOX—UNITED STATES.

Colorado: Larimer Co., Nov. 1-30, 7 cases.
District of Columbia: Washington, Dec. 24-31, 1 case.
Illinois: Chicago, Dec. 24-31, 11 cases, 3 deaths; Danville, Dec. 17-31, 2 cases, 1 death.
Michigan: At 52 localities, Dec. 17-24, present.
Missouri: St. Louis, Dec. 17-24, 18 cases, 1 death.
South Carolina: Georgetown, Nov. 16-Dec. 31, 8 cases.
Tennessee: Dec. 24-31, Memphis, 3 cases, 2 cases imported; Nashville, 8 cases.

SMALLPOX—FOREIGN.

Austria: Prague, Dec. 3-10, 15 cases.
Ecuador: Guayaquil, Dec. 7-14, 1 death.
France: Lyon, Dec. 3-10, 1 case; Paris, Dec. 10-17, 4 cases, 1 death.
Great Britain: Dec. 10-17, London, 2 cases; Newcastle-on-Tyne, 19 cases; South Shields, 5 cases, 2 deaths.
India: Bombay, Nov. 31-Dec. 6, 14 deaths.
Italy: Catania, Dec. 8-15, 1 death; Milan, Oct. 1-31, 1 case.
Mexico: City of Mexico, Nov. 19-Dec. 10, 3 cases, 1 death.
Norway: Christiania, Dec. 10-17, 1 case, 1 death.
Russia: Moscow, Nov. 27-Dec. 8, 5 cases, 2 deaths; Dec. 3-10, Odessa, 1 case; St. Petersburg, 5 cases; Warsaw, Nov. 5-12, 5 cases.
Turkey: Constantinople, Dec. 4-11, 20 deaths.

YELLOW FEVER.

Ecuador: Guayaquil, Dec. 7-14, 3 deaths.
Mexico: Dec. 18-24, Juchitan, 2 cases, 1 death; Texistepec, 2 cases, 1 death.

CHOLERA.

India: Bombay, Nov. 30-Dec. 6, 2 deaths; Calcutta, Nov. 26-Dec. 3, 69 deaths.

PLAGUE.

Arabia: Aden, Nov. 25-Dec. 2, 18 cases, 14 deaths.
India: Bombay, Nov. 30-Dec. 6, 76 deaths; Calcutta, Nov. 26-Dec. 3, 8 deaths.
Straits Settlements: Singapore, Nov. 6-19, 3 cases, 3 deaths.

Cases reported during the week ended Dec. 30, 1904:

CHOLERA.

India: Bombay, Nov. 22-29, 1 death.
Russian Empire: Erivan, Nov. 22-28, 914 cases, 363 deaths; Jelisavetpol, Nov. 16-22, present; Tachken, Nov. 27, 18 cases, 8 deaths; Tiflis, Nov. 16-22, present.
Turkey in Asia: Nov. 28, 72 cases, 43 deaths.

PLAGUE.

Africa: Cape Colony, Nov. 6-19, 5 cases.
Arabia: Aden, Nov. 18-25, 19 cases, 12 deaths.
Argentina: Tucuman Province, Nov. 18, 1 death.
Brazil: Bahia, Nov. 12-26, 6 deaths; Rio de Janeiro, Nov. 6-27, 101 cases, 35 deaths.
Egypt: Tukh District, Nov. 19-26, 2 cases, 2 deaths.
India: Bombay, Nov. 22-29, 74 deaths; Calcutta, Nov. 19-26, 8 deaths; Karachi, Nov. 20-27, 14 cases, 14 deaths.
Paraguay: Asuncion, Oct. 6, 20 cases weekly, estimated.
Peru: Guadelupe, Dec. 7, present; Lima, Nov. 1-15, 6 cases.

Medical Organization.

ORGANIZATION IN TENNESSEE.

The approaching meeting of the Tennessee State Medical Association leads the *Southern Practitioner* to discuss "this subject of so great importance to every member of the regular medical profession who has his own interest and that of his clientele at heart." The editorial is in part as follows: "The method now in force in so many states is unquestionably the most satisfactory, and promises by far the most beneficial results possible. It is distinctly representative, it places the foundation and basis of representation where it should be, at the bottom; the county societies being the only correct criterion and proper means and method of determining the standard of all who are entitled to the courtesies, the advantages and privileges of membership in our state and national associations.

"What does the member in an east Tennessee county know of the ethical standings of those in the western or middle divisions of our state? Or what can those in one county or section even not as far removed know of the character of others than those in their own vicinity? If a physician is acceptable to his home associates, he should certainly be acceptable to other members of the profession in other localities. This is the method adopted by all organizations, and can but prove most satisfactory in ours. Much might be said in behalf of the recent measures suggested by the American Medical Association for the profession in all states, and the progress so far made is most gratifying, indeed, and shows that it is being almost universally accepted. . . .

"We can but regret that the 'Old Dominion,' the 'Mother of States,' still lags back, and so far has refused to align herself with the large number of her sister states, north, south, east and west. We can but attribute it to a degree of unwise conservatism, a disposition to hold on to old methods, but it is not progressive. While our professional brothers in Virginia have done well, yes, better than a number of others under the old but somewhat loose and indefinite method of the past, we most heartily and sincerely believe that they can do still better under the new order, and we are surprised that its especially representative features have not appealed more strongly to them. However, we can afford to wait if they can, and we firmly believe that it is only a question of time.

"While we have accomplished much in our own state, yet we have not done altogether as well as our sincere desire, but what has been done has been most satisfactory, and we were perhaps too sanguine. We have now sixty-five counties with organized medical societies on the roll of our state association, with a membership of something over 1,200, and although these are the most populous and thickly settled sections of the state, we had hoped that others would have been added before this. Owing to the large area and sparse population, the defective roads and means of reaching them, the same effort has not been made by the committee on county organization that was continued over last April from the preceding years, as in other counties. In our opinion, the committeee has not been as active and energetic as it should have been. This, however, can be remedied in the months yet preceding the annual meeting of the state association. This statement is not made in a captious or critical manner as regards the action of the committee, and we take this method of calling their attention to the matter, and wish to put them on their mettle as it were, and most sincerely hope that an aggressive campaign will at once be entered on. The sooner work is commenced the better results we will have.

"In the thirty counties in which so far no organization has been officially reported and enrolled in the state association, there is, according to the census of 1900, a population of 301,317, while the other sixty-five counties embrace a population of 1,719,099. Even in some of these counties, county medical societies have been organized. In some of these counties the sparse population has necessitated but a limited number of physicians, not sufficient to form an organization, . . . yet we hope that . . . in those counties . . . two or more may unite in the formation of an organization, for which due provision is made in the constitution and by-laws of the state association.

"We have had the opportunity of visiting a few of the county societies during the past year, and in every instance we have found the members showing an interest that can but redound to their good. In two of these counties no organization had previously existed, and but few of the profession there had ever taken much interest in our state meetings, yet in these we found an active membership that we feel confident will be perpetuated and increased. From other counties . . . we have received very encouraging reports. Interesting and harmonious meetings, and in every instance where a county society has been organized for as much as a year, there is a far more agreeable and harmonious feeling between the members of the profession than had previously existed."

Continued Success in Michigan.

From a letter received from the Secretary, Dr. A. P. Biddle, we learn that the membership of the Michigan State Medical Society at the beginning of 1905 was 1,761, a gain of 106 over the year 1903. Considering the enormous gain of 1903 over previous years, the conditions are certainly very satisfactory and the workers in Michigan are to be congratulated.

Society Proceedings.

WESTERN SURGICAL AND GYNECOLOGICAL ASSOCIATION.

Fourteenth Annual Meeting, held in Milwaukee, Wis., Dec. 28-29, 1904.

(Continued from page 58.)

Operation for Undescended Testicle.

DR. E. M. SUTTON, Peoria, Ill., reported the case of a boy, 11 years of age, a cryptorchid who suffered from strabismus and nervousness, but otherwise was well. In making an incision in the inguinal canal, the testicle was found above the internal ring free; the cord was retained by a band extending posteriorly toward the median line, and upward opposite the second lumbar vertebra. Blunt dissection was resorted to until the cord was freed and the testicle deposited easily in the bottom of the scrotum without tension. The remaining step of the operation consisted in making a buttonhole incision through the bottom of the scrotal sac, posterior to its middle, where the skin is less elastic, catgut stitches inserted through the edges of the skin, and the tunica albuginea in a way which held the end of the testicle attached to the skin, necessitating healing by granulation. Convalescence was uncomplicated; the testicle was permanently fixed in the bottom of the scrotum and did not atrophy.

Objections to attaching the testicle to the bottom of a movable sac are valid, since experience demonstrates the futility of such a method. The Katzenstein operation of taking a flap from the inner side of the thigh is a step in the right direction. However, with the modifications employed in the author's case, considering the satisfactory results, the surgeon can fix the testicle absolutely. Dr. Sutton also reported a case of aneurism of the superior mesenteric artery on which he had operated.

Splenic Anemia.

DR. PALMER FINDLEY, Chicago, reported a case of splenic anemia in which he removed the spleen with good results. He offered a word of caution as to the hasty diagnosis of splenic anemia wihout giving due consideration to other possible causes for splenic enlargement associated with a secondary anemia, such as malaria and syphilis, and advised splenectomy for only the rapidly progressive cases.

High-Frequency Electricity.

DR. E. M. SALA, Rock Island, Ill., related his personal experience with the d'Arsonval high-frequency current, and reported cases in which the immediate results are gratifying. He is convinced that the d'Arsonval-Odin apparatus has a very promising future.

The Care of the Axilla After Excavations for Malignant or Infective Lesions.

DR. JOHN B. MURPHY, Chicago, said that extensive dissection of the axilla is not infrequently followed by contracting, painful cicatrices, limitation of motion, edema, neuralgia, etc. These can be relieved or avoided by (a) line of skin incision, (b) immediate grafting or transplantation, (c) muscular implantation and (d) muscular conservation.

Bone Plug for Bone Cavities.

DR. JAMES E. MOORE, Minneapolis, Minn., stated that in January, 1903, von Mosetig reported a large number of successful results from the use of a new bone plug. The plug does not act as a foreign body, nor does it act as a culture medium. It possesses the inhibitory and medicinal properties of iodoform without causing iodoform intoxication. His experience with this material, although limited, has been sufficient to satisfy him that better results can be obtained in treating bone cavities with it than by any older method, and in illustration he reported four recent successful cases. He believes that cases can now be treated successfully with this bone plug in which formerly amputation was performed, as, for instance, in cases of tuberculosis of the wrist and ankle joints.

Excision of the Semilunar Ganglion in Facial Neuralgia.

DR. A. E. HALSTEAD, Chicago, reported seven cases. The pain may return after the removal of the ganglion. In his cases each ganglion was carefully examined by a competent microscopist. In each ganglion elements were found, and the gross anatomic characteristics of the organ were preserved.

DISCUSSION.

DR. JOHN B. MURPHY stated that in his twelve cases there were four deaths. This large percentage caused him to abandon the operation. Since his last report he has had only one recurrence of neuralgia after the injection of osmic acid.

Mortality, Disability and Permanency of Cure in Surgery.

DR. CHARLES H. MAYO, Rochester, Minn., selected this subject as the President's Address. This will be published in THE JOURNAL.

Surgical Diseases of the Pancreas.

DR. D. C. BROCKMAN, Ottumwa, Iowa, said that recent studies of the pancreas show the importance of internal secretion from the islands of Langerhans; also the influence of regurgitation of bile into the pancreatic ducts as a cause of pancreatic inflammation. He mentioned biliary disturbance as the chief cause of pancreatic disease, and stated that pancreatic cysts are believed to be mostly due to this cause. He reported three instructive cases of cyst of the pancreas, and then gave an outline of inflammatory troubles, with special reference to the diagnosis and treatment of acute and chronic pancreatitis.

Cysts of the Pancreas.

DR. D. W. BASHAM, Wichita, Kan., referred briefly to the physiologic anatomy of the gland, in order to elucidate the principles underlying the formation of a cyst of this organ. He recounted the symptomatology, and pointed out the difficulty attending the diagnosis. As to treatment, Gussenbauer was the first to marsupialize the sac, and since then this has been a favorite procedure with most surgeons. The only question regarding this method is whether to attach the sac to the abdomen and incise at once or to operate twice. If there is plenty of time and the cyst is not so large that a day or two may make any difference in the result, he thinks it is better to operate in two stages, stitching the sac to the peritoneum and muscles, and opening two or three days later. Excision of the sac is not often practical, but may sometimes be attempted. Often such a course will expose the patient to the risk of contaminating the peritoneal cavity with pancreatic secretions. He reported the case of a tumor of the pancreas in a woman 62 years of age. The tumor was removed. The patient left the hospital at the end of seven weeks, and he has not seen her since. The woman's dyspeptic manifestations were better after the operation than before, but were not entirely relieved. About the first of December the patient began to have serious trouble with her stomach and called a physician, who outlined a tumor in the region of the pylorus, which he diagnosed as cancer of the stomach.

DISCUSSION.

DR. WILLIAM D. HAGGARD thinks inflammations of the pancreas will occupy the most prominent position in the future development of surgery. Disease of this organ is closely allied to surgery for lesions in the upper abdomen. When one stops to think how our knowledge has been amplified in the last two years relative to this sequestered organ, and when one

considers that many cases of so-called gastritis, intestinal obstruction, etc., are after all probably instances of pancreatitis, it makes surgeons realize that the lesson has been appreciated, but we have not yet mastered the diagnosis of this as well as other lesions; nevertheless more attention should be addressed to lesions of the pancreas than has been done in the past. He referred to the three types of infection, and called attention to the excellent work done by Opie, Robson and others.

DR. BROCKMAN has had four cases of pancreatic cyst in the last twelve or fourteen years.

Excision of Elbow Joint for Ankylosis.

DR. B. MERRILL RICKETTS, Cincinnati, Ohio, drew the following conclusions:

"(1) Excision of the elbow joint for ankylosis, due to any cause, at any age, is a most rational procedure. (2) If possible, it should be done before or at the time ankylosis is complete. (3) A posterior median incision is the most practical. (4) With care the operation can be done without injury to blood vessels or nerves. (5) Drainage should always be provided for. (6) The arm should be placed on a right angle splint. (7) Results are better when only the articulating surfaces are removed. (8) If there is complete bony union of the articulating surfaces, much more bony tissue must be sacrificed, because disarticulation can not be accomplished. (9) All soft structures cut transversely will unite, but new insertions are formed which destroy their function. (10) All attachments of tendons and muscles should be preserved. (11) All periosteum should be preserved. (12) If excision of the joint is complete, leaving only the ends of the shafts, flail joint can be prevented by approximating their ends with kangaroo tendon at the time of primary operation. (13) Wire or nail may be used, but their removal sooner or later will be imperative. (14) Flail joint rarely results from any form of excision, but is more likely to be found following excision of the entire joint. (15) If flail joint results, a mechanical device may be employed. (16) Injections of alcohol or one or more of the various astringents will increase fibrous tissue, both in quantity and density."

Operative Treatment of Fractures and Sprains.

DR. A. E. BENJAMIN, Minneapolis, Minn., stated that all fractures should be examined with the *x*-ray to diagnose positively and to locate them. The ordinary form of treatment of even simple fractures often results in a deformed and crippled limb. The term ununited fracture is a myth; the condition is invariably due to some preventable cause. The habit of using the *x*-ray in all fractures leads to more operative measures, although without its use diagnosis is frequently impossible and treatment uncertain. There is frequently as great a subcutaneous injury from a simple fracture as in a compound fracture, and it is essential that an operation should be performed in such cases in order to prevent a lasting injury to the nerve and muscle tissue. By an operation on these fractures drainage is established, pain and fever lessened, exostosis and the organization of the exudate are less permanent, and necessarily there follows less permanent injury to the soft structures. Associated with fractures there is frequently a sprain or a tearing of ligaments and dislocation of cartilages. The progress of a joint that has been sprained is often slow and discouraging, resulting in a weak and insecure union of ligaments. It is advisable to operate on some sprains, especially where there is a great deal of exudate and pain. By the operative method drainage is established, pain relieved, the ligaments can be stitched in their natural position, the convalescent period is shortened, and a greater proportion of cures result.

The Surgical Considerations of Gastric Dilatation.

DR. A. M. POND, Webster City, Iowa, stated that in his last three cases of gastric dilatation due to impairment of the stomach wall, he modified the standard operation. Sufficient time, however, has not elapsed to warrant a description of the operation. In each instance a very satisfactory result was obtained. The success of the operation depends on the patency of the pyloric orifice and the ability of the gastric muscle to regain its normal tone. The author believes that gastric dilatation is usually a sequence rather than a primary cause of discomfort, and that it owes its presence to some disturbance of the elemental dynamics of digestion.

Treatment of Acute Perforations of the Upper Abdominal Viscera.

DR. VAN BUREN KNOTT, Sioux City, Iowa, pointed out the importance of the early recognition of such an accident. The symptoms of gastric or duodenal perforation will usually be more intense than those of perforation of the gall bladder. The previous history of the case is of importance in making a differential diagnosis. The treatment is successful in direct ratio to the promptness with which it is instituted. The resulting peritonitis is the most important outcome of the accident, and its treatment in the various cases is similar. He emphasized the value of posture in treatment.

Pneumatocele.

DR. L. L. MCARTHUR, Chicago, reported a case of pneumatocele, a gas-containing tumor of the cranium. Only 32 cases of this condition have been recorded since 1741. It always originates in connection with either the mastoid or frontal sinuses. It is not to be confounded with emphysema, which is gas in the cellular tissue. Pneumatocele is gas between the pericranium. Incident to the elevation of the periosteum are secondary bony outgrowths, giving the tumor a peculiar "feel." In the preantiseptic era the simple benign pneumatocele became a dangerous affair, because of the frequent connection with the mastoid sinuses, with the potential septic meningitis. Since antiseptic surgery has become well established all these cases recover.

The Value of Skiagraphy in Fractures.

DR. H. A. SIFTON, Milwaukee, Wis., is of the opinion that, when it is possible, the Roentgen ray should be used in the treatment of every fracture. Some urge its use in the obscure or complicated cases only, but the difficulty with this plan is that one can never tell whether or not a fracture is complicated until a radiograph of it is taken. It is the surgeon's duty to look on every case of fracture as a complicated one until it has been shown to be otherwise by a good radiograph. A good radiograph is of value for future information from a forensic standpoint, but no radiograph should be admitted as evidence in any medicolegal dispute unless both parties to the dispute know the conditions under which the radiograph was taken.

DISCUSSION.

DRS. L. L. MCARTHUR, J. W. ANDREWS, C. E. RUTH, A. I. BOUFFLEUR, M. L. HARRIS, A. E. BENJAMIN all concurred in the opinion that the *x*-ray is an important confirmatory aid to the surgeon, but that radiographs should not be admitted as evidence in a court of law.

The Practical Significance of Certain Common Symptoms in the Upper Abdomen.

DR. J. F. PERCY, Galesburg, Ill., said these symptoms are pain from ulcer of the stomach and cholecystitis, with or without stones, and the action of the gastric juice on an open ulcer, either in the stomach or duodenum. Another source of pain is the formation of gas from inhibited peristalsis, due to ulcer or adhesions arising from it. Vomiting was also referred to as one of the symptoms of disease in this region, but in the author's experience it is not as frequent as nausea. Two methods were referred to as aids to the location of lesions in the upper abdomen, one being light finger percussion, eliciting pain over the inflammatory focus, in patients not too obese, and the other the resistance of the costal cartilages on the right side in inflammatory conditions of the gall-bladder and in ulcer of the duodenum or pylorus, as recently pointed out anew by Elliott. The author laid special stress on the effects of chronic infections of the liver and pancreas from ulcer of the stomach and persistent cholecystitis, and cited cases in point. He stated that some of these cases are rarely diagnosed correctly. Biliousness and dyspepsia are the words most frequently used as descriptive of the diagnosis, and on this the treatment is based. The author stated further that a persistent infection will, in an appreciable number of cases, cause death, regardless of the form of treatment which may be instituted, because of the alteration in the functionating tissues of the liver and pancreas.

DISCUSSION.

DR. JOHN B. MURPHY congratulated the essayist on bringing out with greater force the fact that a differential diagnosis between lesions of the pyloric area of the stomach, the head of the pancreas, and the gall-bladder is extremely diffi-

cult, and also that he emphasized the periodicity of exacerbations in ulcers of the stomach. A large number of cases of ulcer of the stomach have pronounced exacerbations. They are practically well in the period between the attacks.

DR. ALEX. HUGH FERGUSON stated that sudden pain referable to the epigastric region, with tenderness over the gall-bladder, shows that the seat of the trouble is within the gall-bladder, the stone or stones being engaged in the cystic duct. Pain occurring while the patient is in a quiescent state, or occurring after the patient has gone to sleep, points to the gall-bladder rather than to any other organ. An occasional lancinating pain, referable to the region of the gall-bladder and its ducts, points to carcinoma. Pain referred to the region of the ducts is more characteristic of gall-stones. In cases of stone or tumor of the kidney, as well as in tumor of the suprarenal capsule, pain is generally referred to the back. Pott's disease should not be overlooked. Pain referred to the testicle, and radiating into the genitourinary tract, points to the kidney as the seat of the trouble. Still, pain is referred sometimes to these regions from other conditions than stone in the kidney.

DR. WILLIAM D. HAGGARD said that while expertness and refinement in diagnosis are desiderata, surgeons must realize that many of the cases under discussion are not amenable to the niceties and refinement of diagnosis to which attention has been drawn. He referred to the importance of a well-taken clinical history, saying that a great deal of dependence should be placed on it.

DR. B. B. DAVIS protested against the habit of making incisions without having made a careful and sufficient study of the case beforehand, but he said that man is more dangerous who does not make such incisions occasionally than the one who does make them before he has made accurate diagnoses. He related a case which he thought to be one of cholelithiasis, yet on operating he found a large appendix turned up underneath the gall bladder, with dense adhesions around the cystic duct. There were no stones found in the gall bladder; it was perfectly patulous, and after freeing the adhesions he could squeeze the bile out without any trouble. He did nothing to the gall bladder, simply removed the appendix, and thus far relief has been complete.

CALIFORNIA ACADEMY OF MEDICINE.

Regular Meeting, held in San Francisco, Nov. 22, 1904.

The President, Dr. T. W. Huntington, in the Chair.

Resection of Chest Wall for Recurrent Carcinoma of Breast.

DR. EMMET RIXFORD exhibited a patient in whom a portion of the chest wall had been resected for recurrent carcinoma. The patient was seen Aug. 15, 1903, with a suppurating carcinoma of the breast, which had been first noticed four months previously. After primary cleansing of the suppurating area with pure carbolic acid, a Halsted operation was performed and the wound healed without difficulty. Eleven months later there was a recurrence at the site of the original operation and the recurrent tumor was adherent to the chest wall. At a second operation this tumor was removed. It was necessary to excise portions of the first and second ribs and about half an inch of the left side of the sternum. The left pleural cavity was opened, the lung collapsed, and the respiratory movements of the mediastinum and heart could be plainly seen. The respirations became very rapid, but if the opening into the pleural cavity was closed by a hand or a towel the lung seemed to expand and the respirations became better. The wound was closed by a large skin flap. Five months after the second operation there are no signs of a recurrence. The skin flap is drawn in at each inspiration. This is the fourth operation of this character which has been performed by Dr. Rixford. One of the other patients subsequently died of local metastases, one developed local nodules which disappeared under *x*-ray treatment, and one other beside the one here exhibited as yet has shown no signs of metastases. The operation is only justifiable when the patient is in good condition and when there are no distant metastases.

DISCUSSION.

DR. BARBAT suggested the use of some form of artificial respiration in such cases, similar to that used in physiologic experiments. The Sauerbruch pneumatic cabinet, if accessible, would find a place in these operations.

An Unusual Case of Anemia.

DR. G. H. EVANS and DR. MARY HALTON reported a case of anemia of the aplastic type. The patient entered St. Luke's Hospital Sept. 21, 1903. Six years previously he had had "blood poisoning" in the right foot, and three years previously he had lost his right eye in a shooting accident. About two months ago he had a severe nose bleed, and has had another less severe one since then.

Physical examination showed a well-nourished, pale man, with systolic murmurs over the base of the heart and a large ulcer on the outer aspect of the lower part of the right leg. The blood showed 1,150,000 red corpuscles, 7,300 leucocytes, and 30 per cent. of hemoglobin. A differential count of the white cells showed polymorphonuclears 6 per cent., small lymphocytes 91 per cent., large lymphocytes 2 per cent., and eosinophiles 1 per cent. No nucleated red cells were seen, and there was no marked poikilocytosis and no polychromatophilia.

During his stay in the hospital he had several severe nasal hemorrhages, an irregular fever, and, after gradually becoming weaker, he died ten days after admission. Shortly before death his blood showed 770,000 red corpuscles, 2,300 leucocytes, and about 10 per cent. hemoglobin. The differential count of the leucocytes did not differ essentially from the former count except in the absence of eosinophiles. No parasites nor eggs of parasites were found in the feces.

The autopsy and bacteriologic findings were negative except for the deposit of pigment, giving the reaction for iron in the liver and a moderate enlargement of the hemolymph glands about the inferior vena cava. The spinal cord and the bone marrow of the long bones were not examined.

The case here presented may possibly have been a leukemia with a reduction in the number of leucocytes. Such reductions have been observed during the course of acute infectious diseases, and one of the authors has seen it occur coincidently with pregnancy. On the other hand, the case suggests pernicious anemia in many of its features, viz., the high-color index, the marked reduction of both the red and white cells and the autopsy findings. As has been said, no nucleated red corpuscles were found during life, but later, after a search through about half a millimeter of blood, two megaloblasts were found. The case appears to belong to the class described as aplastic anemias, which are in all probability cases of pernicious anemia without the customary regeneration of blood by the bone marrow.

DISCUSSION.

DR. GEORGE BLUMER reported a similar case of anemia which he saw recently. During life the patient showed an irregular fever, a palpable liver, and bleeding hemorrhoids with an ulcer in the rectum. The red corpuscles varied from 1,500,000 to 1,100,000, the leucocytes from 4,600 to 3,400, and the hemoglobin from 20 to 19 per cent. Very few nucleated red cells were found, and these were either normoblasts or transitional forms. An average of several differential counts showed polymorphonuclears 7.5, large lymphocytes 2.3, small lymphocytes 90.2 per cent. and no eosinophiles. The autopsy showed in general the changes of pernicious anemia except that the signs of regeneration in the bone marrow were very slight. He agreed with the preceding speakers in regarding this type of anemia as pernicious anemia without a reaction on the part of the blood-forming organs.

DR. BRUNN described a child who had enlargements of the liver, spleen and lymphatic apparatus, with marked anemia and with 6,900 leucocytes, which were mostly small lymphocytes. The child died of a streptococcus angina.

DR. EVANS is inclined to regard the last case as one of lymphatic leukemia, with a concomitant infection.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Regular Meeting, Nov. 23, 1904.

The President, Dr. Roland G. Curtin, in the Chair.

Value of the X-Ray in Diagnosis.

DR. L. J. HAMMOND reported the case of a patient who had been suffering with pain in his right wrist for more than two years. There was no tenderness to touch nor any visible signs of inflammation, and it was only when the wrist was abducted that the pain was intense. The condition had been variously diagnosed as rheumatism, sprain, tubercular periostitis and tenonitis. Treatment for these had given no relief. The *x*-ray revealed a fracture of the scaphoid bone, the fragments of which were united by a very loose fibrous connection. The interposed fibrous tissue was removed, perfect apposition of the fragments was secured and they were held together by two small silver wire sutures. There was perfect restoration of all the wrist movements, with entire absence of pain.

An interesting point was that, while the patient recalled having fallen with the hand outstretched and abducted, no immediate symptoms of pain, swelling or ecchymosis were sufficiently pronounced to demand surgical aid. Dr. Hammond said that experience in the surgical out-patients' department of city hospitals showed the frequency of fractures of the bones of the wrist and ankle joints without recognition. The only treatment is to secure bony union, which can be done only by securing perfect apposition, either by wiring or by any other of the mechanical means for this purpose. Dr. Hammond believes wiring to be by far the most reliable procedure.

DISCUSSION.

DR. CHARLES LESTER LEONARD referred to the obscure character of these fractures. They can only be demonstrated by the *x*-ray. This means of diagnosis is particularly valuable in the slight injuries occurring about the joint, the sprains, fractures and chipping of small fragments within the joint which lead to incapacity of function so important to those depending on their hands as a means of livelihood. He believes it the duty of the surgeon in injuries about the joints to have *x*-ray examinations made to exclude these fractures, for a negative diagnosis is of much value to the patient in a saving of time and in the immediate institution of the proper treatment.

DR. HAMMOND agreed with Dr. Leonard that fractures of this kind are not rare, are sure to be overlooked and the condition treated as a sprain or as some constitutional fault.

Typhoid Fever in Philadelphia.

DR. RANDOLPH FARIES said that typhoid fever does not exist in Philadelphia to the alarming extent that the general public is given to believe. The apparently large proportion of the disease in this city he attributed to three conditions: Errors in diagnosis, cases contracted elsewhere, and duplicate cases. He enumerated sixteen diseases which may be mistaken for typhoid fever. No case should be reported to the board of health as typhoid fever unless a Widal reaction has been taken and unless the urine, feces and catarrhal secretions also have been examined. Especial care should be taken in examining the liver and spleen, in noting the course of the temperature, the nature of the pulse, the amount and kind of stupor, as well as the nervous symptoms present, and a blood count should be made. Dr. Faries believes that, with the municipal improvements of cleaner streets, better surface drainage and perfect under drainage, the abolition of cesspools, houses constructed with better scientific ventilation, careful disinfection of everything whereby typhoid may be transmitted, extreme vigilance on the part of the health authorities in reference to impure milk, adulterated foods, impure water, and a constant instruction to the general public in reference to those foods by which typhoid is often contracted, such as raw oysters, lettuce, overripe and unclean fruits, etc., it is reasonable to suppose that there will come a time when very few cases of typhoid fever, if any, will exist in Philadelphia.

DISCUSSION.

DR. EDWARD MARTIN, director of the Bureau of Public Health, observed that statistics show a certain amount of transference of typhoid fever from one case to another, and that the reason for reporting the cases, so far as the public health is concerned, is to prevent this direct transference and to take precautions against a local epidemic. In most cases of typhoid, in the well-to-do, the community is properly protected, but among the cases seen by the corps of assistants to the Bureau of Health the importance of a report is very great. The bureau would rather have a report of a case which is not typhoid, and look it up, than to have the case unreported and a possible spread of the contagion. Disinfection of the dejecta he regards as difficult and thinks we should not be indifferent to the people who get water below our pollutions. In the walking cases the urinary secretions may remain for a week a prolific source of infection. The Bureau of Health has made a statistical study of wells and cesspools and has been astonished to find upward of one hundred in such juxtaposition that the water must be infected. He regards the water supply as the main source of infection and feels that Philadelphia will still be a typhoid-cursed city until it has a filtered water supply.

DR. FARIES said that many of the cases are reported too quickly, but that the remedy is difficult since the assistant inspectors of the health department are not allowed to interfere with the family physician. It is, therefore, manifestly the duty of the family physician to be especially careful in his diagnosis. While it is possible to ascertain the exact number of cases outside of the city, and the duplicate cases, it is not possible to estimate those cases of error in diagnosis.

Trachoma Successfully Treated with the X-Ray.

DRS. W. S. NEWCOMET and J. P. KRALL exhibited a girl of 18 who had been subjected to all the operations for the cure of trachoma without success. She was treated with the *x*-ray from July, 1903, until Jan. 1, 1904. The inflammatory reaction was so intense that it was thought better to abandon the treatment. Later, however, it was found that she could count fingers at close range. The cornea of the eye was entirely clear and only with special illumination could there be seen fine blood vessels. The eye not treated with the *x*-ray showed all the symptoms that the treated eye formerly exhibited. The condition of the patient had been present since infancy, and she had been unable to see across the room. Treatment was given every other day for five minutes for about six weeks, when a burn developed and treatment was withheld. Dr. Newcomet believed the result to be due to the accidental burn produced in the course of treatment.

DISCUSSION.

DR. JAY F. SCHAMBERG referred to a case of trachoma in the Polyclinic Hospital, in which the vascular injection of the cornea was less pronounced than in the case exhibited, but which had a tremendous growth of vegetative excrescences on the conjunctivæ. The man has received about twenty treatments. The growths have almost entirely disappeared in both eyes and the conjunctivæ are fast approaching normal. In technic the eye was exposed by means of a clamp, the upper lid was everted and the clamps held by weights.

DR. GEORGE E. PFAHLER referred to the paper of Dr. Mayo of London. He did not understand that any burns had been produced in the cases of Dr. Mayo. The face at first was covered with a mask, but later no precaution was taken. The soft tube was placed about nine inches from the patient and the treatments were from three to five minutes in length.

DR. CHARLES LESTER LEONARD regarded the case as of much interest both from the aspect of the ophthalmologist and from that of the *x*-ray worker. The condition still present in one eye which had been symptomatically cured in the other he thought showed a marked illustration of the possibilities of the *x*-ray in chronic conditions about the eye. The value of the method, he believes, depends not on the production of a burn, but on a specific action of the *x*-ray on the autolytic ferments contained within the cells themselves. The *x*-ray, he stated, is not a cure-all, but an agency which assists nature by stimulating to action the self-contained elements within the cells.

DR. M. K. KASSABIAN agreed with Dr. Leonard regarding the stimulating and irritating action of the *x*-rays on the tissues,

but he believes further that there is a germicidal or inhibitory action on the germ. He covers the Crookes tube with a dark cloth and darkens the room, preventing injury to the patient from the light because of the excessive photophobia. He attaches the everted eyelids by adhesive plaster to the skin. He had four cases in the Philadelphia Hospital, two acute and two chronic. The acute cases had severe photophobia and lacrimation and were improved after four or five exposures.

DR. NEWCOMET said operators in London are careless. One-half of the men used little or no protection in the treatment, and one man used only wet gauze. Dr. Newcomet uses a shield and as much as possible avoids handling the cases.

Travel Notes.

XXII.

AN INTERSEMESTRAL EXCURSION.*

LEWELLYS F. BARKER, M.D.
CHICAGO.

The division of the university year in Germany into two semesters with a good month's vacation between them in the spring has some special advantages. For the vacation is a real one; the student finds the clinics and the laboratories closed to him during this period; if he wishes to work he must apply at some private laboratory. The month gives excellent opportunity to teaching staff and students for quiet recreation or travel. Many teachers spend the time in a walking, bicycling or boating tour; others take advantage of this season to visit neighboring or distant colleagues, consult various authorities on particular phases of their research, examine new methods or new apparatus recently reported, or attend some one of the various congresses usually held in this period.

Despite the train of snows, rain, frosts and storms which winter, more than usually dreary in Munich, led "out of his Scythian cave," the city had been so interesting, profitable and enjoyable that it was with regret that one made up his mind to leave it. The home instinct which lies deep in human nature soon makes itself felt when once one is comfortably settled, even in a foreign city; it requires an effort to give up more permanent lodgings and enter again on the itinerant life. But the medical traveler who has only a year at his disposal dare not let his "high hopes faint on the warm (*sic*) hearthstone" of a German pension. The vacation must be utilized as well as the semesters if the year is to bring its full quota of experience.

NUREMBERG.

It seemed almost paradoxical to go to old Nuremberg to visit a new hospital, but it is nevertheless true that the American visitor can not afford to neglect a visit to the General Hospital of this artistic "City of the Empire" if it is a part of his mission to look into modern hospital construction in Europe. Just before leaving New York it had been my good fortune, thanks to Dr. Painter's courtesy, to examine in some detail the architecture and arrangements of the New York Lying-in Hospital. It proved to be a great help to have the main features of this triumph of hospital building in mind for comparison when visiting the Nuremberg Hospital and subsequently others of the newer European hospitals

The remarkable commercial development of Nuremberg in recent years has led to such a rapid growth of the city that it now has more than a quarter of a million inhabitants; this fact, together with the compulsory insurance of the working classes against disease in Germany, led to such an increase in the number of applicants for hospital treatment that, a few years ago, the building of a new hospital by the city became a matter of absolute necessity. It took some three years to build it. The plans were so carefully drawn and the work so well executed that the new City Hospital in Nuremberg has served for a model for several others which have been planned since; the new hospitals in Budapest, Copenhagen, Odessa, St. Petersburg, Prague, Rotterdam, Warsaw and Vienna have all, it is said, borrowed and adopted ideas from it.

The hospital, which is situated in the quiet northwestern part of the city, consists of thirty-one buildings, entirely separate from one another above ground, but all connected by means of subterranean tunnels for the conduction of heat, water and light. The buildings, with the exception of the administration and the director's dwelling, are simple externally —almost painfully simple—but one can not refuse to admire the wisdom which curtailed external adornment in order that the more important internal arrangements might be made as nearly perfect as possible. At present there are 946 beds—252 surgical, 417 medical, 121 for venereal diseases (!), 45 for skin diseases, 31 for insane patients, and 80 for overflow cases, medical and surgical. The money for the buildings was supplied by the city and the annual support, outside of the fees derived from patients, comes from the same source. The city government is represented by a civil supervisor, the so-called *Pfleger des Krankenhauses.* The whole medical administration, however, is subordinate to the medical director, Dr. G. Merkel, one of the best known and deservedly popular medical men of southern Germany. The housekeeping, bookkeeping and accounts are in the hands of the business manager, the so-called *Krankenhaus-Verwalter.* The dangers of conflict among these three factors of the administration are avoided by means of rigid definition of the functions of each; each has his own rights and each his own duties, and they are so specific that the machine runs, it is asserted, without friction. The medical director is also the physician-in-chief to the first medical subdivision of the hospital. The other chiefs of subdivisions are chosen from practitioners in the city; each has his own assistant physicians, nurses and orderlies directly responsible to him, and regarding the treatment of the patients in his wards he has a free hand Each "chief" is responsible for the general hygiene, diet and therapy in his particular division; he has to make a daily visit, in the early morning, and where necessary an evening visit also. If called at other times by the assistant physicians on account of an emergency or the grave condition of a patient, the "chief" is expected to promptly respond. Among other duties each chief is required to see that the histories of patients are regularly kept and to make sure that the assistants of his division perform their duties in full. It is his duty to see that an autopsy is performed by the pathologist on every patient dying in his division and to make sure that a proper protocol of the same is preserved. A special paragraph in the regulations states that "it is expected that the heads of divisions will, in the interests of science, utilize and work up as far as is possible the rich observation material at their disposal, calling on the assistant physicians to aid them in their work" If differences of opinion arise as to the medical duties the director has the deciding word.

All over south Germany the hospital nursing is in ecclesiastical hands; so in Nuremberg the nursing is in the charge of a superior deaconess of the Evangelical Lutheran Deaconess Institution of Neuen-Dettelsau. The orderlies (or male nurses) are also deacons. Non-ecclesiastical nurses and orderlies are employed in the insane wards and in the male syphilitic wards only. The hospital is supplied with all modern conveniences in the way of telephones, electric clocks, ice machine and the like, just as in our American hospitals. The assistant physicians live on the first floor of the administration building; in this building, too, are reading rooms, library, consultation rooms and the quarters of the business manager. Near the administration building is the large surgical operating house, quite in keeping in its appointments with the most fastidious requirements of the aseptic surgeon. A larger operating room is reserved for aseptic operations, a smaller one for septic cases. The light is excellent, most of the walls consisting of ground-glass windows, the rest of the walls and the floor of glazed white Mettlach tiles. The whole operating room is swung, as it were, in a warm-air bath, for, in addition to heating the room proper, warmed air circulates constantly through the air

* The last article by Dr. Barker, in this series, appeared in THE JOURNAL, Sept. 24, 1904, p. 892.

cavities beneath the floor and between the double walls and windows. The operating house contains also sterilizing rooms, instrument rooms, dressing rooms, nurses' rooms and a microscopic room—quite in accordance with modern American custom. One detail seemed wise—the provision of two currents for the electric lighting of the operating room at night and on dark days—one for regular use, the other in reserve in case of sudden interruption of the regular current in the course of an important operation.

The main wards of the Nuremberg hospital are, in the interior, very much like those of the Johns Hopkins Hospital in Baltimore, though it must have cost much less to build them. The wards have all the advantages, but also the disadvantages of the pavilion system. With modern ventilating systems, with improved elevator service, and with the newer knowledge of the mode of spread of infectious diseases, the necessity for the pavilion system of construction has largely disappeared; there would seem to be no reason now why the more compact system of hospital building, story above story, should not be returned to. The demands made on medical, nursing and housekeeping staff are enormously reduced in the more compactly built hospital; the administration is, therefore, a much more economical one, and, since hospital administrations are too often more economically inclined than is good for the welfare of the patients, it would seem probable that where endowment is limited the patients will be better cared for, the diseases better studied, other things being equal, in a compactly built hospital than in one arranged in separate pavilions.

The heating, ventilating and lighting systems in the Nuremberg hospital leave nothing to be desired. I was especially interested in the method of disposal of sewage. It seems that a city ordinance prevents the hospital from emptying any unpurified sewage into the city sewers. Accordingly, all the waste water from water-closets, sinks, baths, kitchen and laundry is brought through drains to a special building, where it is clarified and disinfected by the Müller-Nahnsen process. The watery sewage is first mixed with milk of lime, aluminium sulphate and silicic acid, then passed through a sieve to remove larger solid bodies and afterwards led into two large clearing tanks. The latter are about 25 feet deep, the incoming sewage mixing with the contents of the tanks at a level about 15 feet below the surface. Sedimentation takes place in the tanks; the overflow from the first tank fills the second; the overflow from the second is led into the city sewers. The solid bodies held back by the sieve are burned with other garbage in an adjoining crematory. The sediment which collects in the lower part of the tanks is removed from time to time by an electric plunger pump; it is placed in a large filter press, the filtrate running back into the clearing tanks. The residue of solid compressed sediment is carted away and buried; it amounts to about 1.5 cm. (5 cubic feet) a week. The water passing through the clarifying tanks amounts to some 300,000 liters daily. The clearing tanks cost about $8,000 to install; the patent preparation and chalk used to mix with the waste water costs less than $1.00 a day.

Another feature of the Nuremberg hospital which pleased me, one frequently found in sanitariums, but not as often represented in American public hospitals as one would like to see it, is the department for balneotherapy and mechanotherapy. The bathhouse is excellently arranged for hot and cold baths, Turkish and Russian baths, douches, showers, etc.; in addition there are carbonic acid baths, electric tub baths, electric light baths, sand baths, sun baths and mud baths. Nearby are the rooms for gymnastic exercises, massage and apparatus for mechanotherapy

Finally, I must mention among the praiseworthy characteristics of the Nuremberg hospital the number of rooms provided for a single patient, the laboratory for each ward, the excellent Roentgen ray laboratory, the liberal provision of verandas in connection with the wards, the mechanisms for lifting and transporting beds, and the movable iron gratings for the windows of the isolation rooms. The well-organized pathologic laboratory under the direction of Dr. Thorel is also worthy of imitation.

From what I have said it will be obvious that the hospital affords much opportunity for an American visitor to praise; there is but little for him to criticise. He misses, however, the quality of nurse to which he is accustomed at home; there is, further, no nurses' home, for the nurses live in rooms adjoining the wards. Certain hospital features jar on an American's taste, in Nuremberg as in most German hospitals, as for example the permitting of patient's wash basins in the main wards, the conspicuous position given to urinals and bedpans, the unnecessary exposure of patients during clinical examinations, the intimacy of the examining ear with the patient's skin, and the apparent unacquaintance with the utility of towels and screens. But take it all in all, Germany may be very proud of the kind of city hospital of which that in Nuremberg may be chosen as a type.

There is no medical school in Nuremberg, but arrangements are being made by which the hospital and its material will be utilized for the instruction (1) of German medical students during their fifth or hospital-practice year, and (2) of physicians who do postgraduate work in connection with the so-called postgraduate courses (*Fortbildungskursen*) now being organized all over Germany.

Though Nuremberg has had a great industrial awakening, the city authorities and citizens generally are to be congratulated on their efforts to preserve as intact as possible the landmarks of earlier times. In its esthetic characters Nuremberg seemed to me much the same as when I visited it nine years ago. The quaint and picturesque architecture is as interesting as ever, the collections as jealously guarded. You can buy tickets for a lottery of pictures in the Dürer house; the *Gänsemännchen* still steadily holds his double-sided burden in the market behind the Church of Our Lady. Up on Castle Hill the torture-chamber with the "Iron Virgin" excites horror as of yore. The little girl, who, in measured English, used to describe the mysteries of the deep well, is married now, but her account remains to the syllable unaltered. And as we wandered at night through the quaint streets, across the Pegnitz from the Lawrence to the Sebald side and up to the Moritz-Capelle, and again ate sausages and drank black *Tücherbräu* in the little *Bratwurst-Glocklein* we felt that, aside from Rothenburg, there is no place in Germany better suited, perhaps, than Nuremberg to carry one back in spirit to the life and habits of the Germany of old.

(To be continued.)

Therapeutics.

[Our readers are invited to send favorite prescriptions or outlines of treatment, such as have been tried and found useful, for publication in these columns. The writer's name must be attached, but it will be published or omitted as he may prefer. It is the aim of this department to aid the general practitioner by giving practical prescriptions and, in brief, methods of treatment for the diseases seen especially in every-day practice. Proper inquiries concerning general formulae and outlines of treatment are answered in these columns without allusion to inquirer.]

Eczema in Infants.

The treatment of eczema in infants, according to *Amer. Med.*, consists first in regulating the diet of the mother if she nurses the child. A mixed diet should be prescribed, with prohibition of meat, wine and coffee.

The local treatment consists in removing all dried exudates from the skin by means of a bland oil, followed by a boric acid wash. This should be followed by a soothing application to calm the itching and pain. For this purpose the following combination is recommended:

R.	Acidi salicylici	gr. i-ii	.06-.12
	Zinci oxidi		
	Pulv. amyli, āā	3iv	15
	Lanolini		
	Liq. petrolati, āā	3iv	15

M. Fiat unguentum. Sig.: Apply locally.

At night the hands of the infant should be tied so that he can not scratch the diseased areas and produce infection.

In chronic cases of eczema occurring in infancy the following combination containing resorcin is recommended:

R.	Zinci oxidi	℥i	4
	Resorcini	℥ss	2
	Ung. aquæ rosæ		
	Liq. petrolati, āā	℥iv	15

M. Fiat unguentum. Sig.: To be applied locally.

Ichthyol is also of value combined as follows:

R.	Ichthyolei	℥iss	6
	Acidi salicylici	gr. xv	1
	Adipis benzoinati	℥vi	24
	Liq. petrolati	℥iv	15

M. Fiat unguentum. Sig.: Apply locally after removing the crusts by means of olive oil.

Resorcin combined with sulphur is very frequently of service in infantile eczema combined as follows:

R.	Resorcin	gr. xv	1
	Sulphuris loti	℥ss	2
	Lanolini	℥iii	12
	Adipis benzoinati	℥i	30

M Fiat unguentum. Sig.: Apply locally to the affected areas.

Internally arsenic frequently produces good results when given in the subacute and chronic forms:

R.	Liquoris potassii arsenitis	℥ss	15

Sig.: Three drops well diluted in water three times a day.

If this preparation disturbs the stomach the liquor sodii arsenatis should be substituted for it, given in the same sized dose.

Where a strumous diathesis is present the following is of value in order to remove the anemia and for its alterative effect:

R.	Syrupi ferri iodidi	℥iiss	10
	Syrupi simplicis q. s. ad	℥ii	60

M. Sig.: One-half a teaspoonful after each meal, well diluted.

Walker, in the *Internat. Med. Annual*, recommends the high-frequency current as producing constant results, especially in the weeping form. He states that the itching sometimes disappears after the first treatment. The peculiar quality of the waves thus produced, according to Regnier, is that they modify the sensibility even to the extent of producing anesthesia without producing any appreciable contraction of the muscle, and is, therefore, useful in local inflammations and in impaired nutrition. Good results have also been reported by many dermatologists in the treatment of eczema by *x*-rays.

Camphor as an Anesthetic.

Leredde, in *Jour. de Med. Interne*, recommends the following combinations containing camphor as local anesthetics in affections of the skin accompanied by itching:

R.	Camphoræ	gr. xv	1
	Olei amygdalæ dulcis	℥iiss	10

M. Fiat unguentum. Sig.: To be applied locally. Or:

R.	Olei camphoratæ	℥iiss	10
	Chloralis hydratis	gr. xv	1
	Liq. petrolati	℥iii	90

M. Sig.: To be applied locally. Or:

R.	Zinci oxidi		
	Pulv. cretæ		
	Olei camphoratæ		
	Aquæ calcis, āā	℥i	30

M. Sig.: Apply locally to the affected areas.

Digestive Infections of Infants.

The general indications for treatment of gastrointestinal infections of infants, according to an abstract in *Archives of Ped.*, are as follows:

IN ACUTE MILD FORMS.

A purgative is given with intestinal lavage and water internally. After twenty-four hours, skimmed milk or buttermilk may be given. If diarrhea is present and persists, bismuth, benzonaphthol and sodium bicarbonate are advised.

IN THE FORM WITH FEVER.

Purgatives, gastric lavage and a water diet are indicated, with compresses on the abdomen, and should be kept up for three or four days.

IN THE ALGID FORM.

In this form purgatives are contraindicated. Lavage with water diet and lactic acid are indicated, together with warm coverings, warm baths, hypodermoclysis and, if necessary, injections of camphorated oil hypodermically, opium and astringents.

DYSENTERIC FORMS.

Sodium sulphate as a laxative, lavage and a water diet are indicated; milk and buttermilk are not, as a rule, of benefit in these forms and are usually not well borne; decoctions of cereals, bread water, toast water, thin chicken broth, farina and at last milk in small quantities serve the best purpose.

CHRONIC FORMS.

A purgative and a water diet are first indicated, followed by a careful regulation of the diet. Alkalies, astringents and antiseptics should be employed, also some of the digestants are recommended such as pepsin and pancreatin.

Bronchial Asthma in Infants and Children.

La Fétra, in *Archives of Ped.*, states that the great majority of the asthmatic attacks are due to bronchial spasm, therefore the treatment should point toward relaxing them. He recommends medication by inhalation as of first importance. In infants where the attacks so closely resemble capillary bronchitis, he recommends steam impregnated with creosote, twenty drops (1.30) to a pint of water boiling in a croup kettle, which in most cases relaxes the spasmodic condition. In older children the niter paper, with or without stramonium, is useful. When the spasm becomes intense and marked dyspnea is present, chloroform inhalations are indicated.

As soon as the infant can swallow, the following may be given to relieve the symptoms:

R.	Antimonii et potass. tartratis	gr. 1/100	0006
	Pulv. ipecacuanhæ	gr. 1/20	003
	Nitroglycerini	gr. 1/100-1/50	0006-.0012

M. Fiat chartula No. i. Sig.: At one dose, to be repeated every half-hour for three doses, or until relief is procured.

[We should hesitate in advising such large doses of nitroglycerin, repeated so often.]

The author has also derived great benefit from the administration of atropin in doses of grain 1/2000 every two hours until the face flushes. A child of 2 or 3 years can take, as a rule, two or three of the above doses before this symptom appears. After the attack has passed off the atropin should be given two or three times a day. If the stomach shows disturbances it should be emptied by a dose of syrup of ipecac. In cases of long standing the following mixture is recommended:

R.	Potassii iodidi	gr. xx	1 30
	Morph. sulphatis	gr. 1/3	02
	Tinct. belladonnæ	m. xx	1 30
	Spiritus etheris comp.	℥iii	12
	Aquæ q. s. ad	℥ii	60

M. Sig.: One teaspoonful every three or four hours.

Falling Hair.

The *Medico-Chir. Jour.* recommends the following combination to check the falling out of the hair:

R.	Acidi salicylici	℥iii	12
	Acidi carbolici	℥i	4
	Olei ricini	℥iii	12
	Spiritus vini rectif. q. s. ad	℥vi	180

M. Sig.: To be applied freely to the scalp.

The following is recommended by *Merck's Archives* to prevent the hair from falling out:

R.	Acidi gallici	℥i	4
	Tinct. cantharidis	℥ss	2
	Lanolini		
	Liq. petrolati, āā	℥i	30

M. Sig.: To be rubbed well into the scalp at night.

Acute Rheumatic Endocarditis.

The treatment of acute endocarditis as a complication of

rheumatism consists in the treatment of the cause and of the heart itself to reduce its increased activity and excitability which necessarily tend to increase the inflammatory condition of the valves.

In the treatment of the cause the patient must be put to bed and quiet instituted. The diet should consist principally of milk. The alkalies should be given in sufficiently large doses to promote elimination and to alkalinize the urine. Water should be given freely with the alkalies, such as potassium bicarbonate or citrate. Alternating with the alkalies or combined with them, sodium salicylate should be given in rather large doses. Salicin in doses ranging from grains five to ten (.30-.65) may be substituted for the salicylates.

As to the heart itself, it should do the least amount of work possible. Its action may be controlled by complete rest in bed, ice-bag to the precordial region or in some cases heat applied to the precordium. When much pain is present over this region small doses of codein or of Dover's powder should be given. When the heart becomes rapid or irregular, small doses of strychnia or alcohol are indicated. Anemia not infrequently is present in a good per cent. of these cases occurring in early adult life, and should be corrected as rapidly as possible along with the essential prolonged rest in bed. When the rheumatism has disappeared and the temperature has dropped to normal the patient may be placed on a combined tonic and alterative treatment, and for this purpose the syrup of ferri iodidum is recommended in moderate doses to correct the anemia and changes in the valves as well as in the blood vessels. Arsenic combined with iron and strychnia is a splendid combination during convalescence, as follows:

℞ Acidi arsenosi.....gr. 2/3		04
Strychnin. sulph.....gr. ss		03
Ferri sulph.		
Sodii carb., āā.....3i	4	

M. Fiant cap. No. xxx. Sig.: One after each meal three times a day.

Epidemic Cerebrospinal Meningitis.

The treatment of epidemic cerebrospinal meningitis, according to W. J. Wilson in *Jour. Mich. State Med. Soc.*, consists in sustaining life by rectal feeding of peptonized milk with yolk of egg when gastric irritability is present and a tendency to vomit. Lavage should be resorted to and light nutritious food given, such as whey, white of egg, broths and soups, administered at intervals of three or four hours. The sick room should be kept at a temperature of from 68 to 70 degrees F. If marked fever is present, the scalp should be shaved and an ice-cap applied to the top of the head and a bag to the nape of the neck. A mustard footbath is recommended by the author in some cases to relieve the cerebral symptoms.

Special attention must be paid to the bowels and kidneys, and if the urine is scanty, high colonic flushings of a normal salt solution should be given at a temperature of 110 degrees F. When active delirium is present hyoscyamin should be given hypodermically in 1/100 grain (.0006) doses.

Suppositories each containing chloralamid grains ten (.65) with or without small doses of belladonna are of benefit to produce sleep.

Large doses of potassium iodid or of sodium iodid in daily doses of from fifteen to sixty grains (1.-4.) should be tried. Mercurial ointment rubbed into the scalp and nape of the neck, morning and night, may be of service.

Medicolegal.

How to Recover Money Paid Illegal Practitioner.—The Court of Civil Appeals of Texas says, in the case of Gaither vs. Lindsey, an action on a contract for the treatment of the defendant's wife, that, in order to recover money already paid for the treatment of his wife, the defendant would have to do more than to prove that the plaintiff was practicing medicine in violation of the law. Unless, in addition, the defendant could show that he was deceived and imposed on, he would not be entitled to recover back money already paid, although the plaintiff could not recover anything from him, since the general rule would apply that money voluntarily paid cannot be recovered. If, however, the plaintiff in any way represented himself to be a practicing physician, when he was not authorized to practice medicine, and the defendant was thereby induced to employ and pay him for professional services, he could recover the money so paid.

May Give Conclusions Without Facts.—The Supreme Court of Iowa says that, in the case of Morrow vs. the National Masonic Accident Association, the only witnesses examined by the association as experts were physicians who had either attended the insured in a professional capacity after his injury or were present and took part in the postmortem examination held. Yet before they were permitted to testify their conclusions as to the cause of death they were required to detail all of the facts on which such conclusions were based. These rulings were, in the judgment of the Supreme court, clearly erroneous, because every conclusion testified to was based on actual knowledge of the physical condition of the deceased, and, further, because the rule has never, to the knowledge of this court, been applied to witnesses who were in fact experts on which they were called to testify. But, notwithstanding the error in the rulings, it must be held that they were without prejudice, because of the fact that in every instance the testimony was made competent under the rule of the district court and the conclusions of the witnesses received. Again, the Supreme Court holds that if there had been no conflict on the question of the cause of death the jury would have had no right to disregard the evidence of the physicians and find independently of it. But when there is a conflict in the evidence on a given point it is the general rule that the jury is not bound to treat the testimony of any witness as conclusive, no matter whether he be an expert or a non-expert.

Unlawful Practitioners—Taxing Itinerant Physicians.—The Supreme Court of Iowa says that the charge in the case of State vs. Edmunds was that the defendant, being a nonresident, assumed the duties of, and publicly professed to be, a physician, and did attempt and profess to heal and cure diseases by dieting his patients and causing them to take certain exercises and to wear glasses furnished by him; that he went about and in various ways solicited persons to meet him for treatment, and did, while so practicing as an itinerant physician, treat and attempt to cure injuries, diseases, etc. Did the acts charged constitute an offense under the laws of Iowa? Section 2579 of the Code defines "physician," "practice of medicine," etc., as follows: "Any person shall be held as practicing medicine, surgery or obstetrics or to be a physician within the meaning of this chapter who shall publicly profess to be a physician, surgeon or obstetrician, and assume the duties, or who shall make a practice of prescribing or prescribing and furnishing medicine for the sick, or who shall publicly profess to cure or heal." Section 2,580 provides a penalty to be imposed on "any person who shall practice medicine, surgery or obstetrics in the state without first having obtained and filed for record the certificate therein required." Section 2581 defines an "itinerant physician" as follows: "Every physician practicing medicine, surgery or obstetrics, or professing or attempting to treat, cure or heal diseases, ailments or injuries, by any medicine, appliance or method, who goes from place to place, shall be considered an itinerant physician." This section also provides for a license fee of $250 per annum, the same being payable into the state treasury for the use of the state of Iowa. Such license may issue only to such as hold a certificate from the State Board of Medical Examiners. It was contended that as the defendant did not profess or attempt to cure by any medicine, appliance, or method similar to medicine, but by dieting his patients, etc., his acts did not come within the prohibitions of section 2581. The Supreme Court says that the question here was a narrow one, depending wholly on the construction to be given the words "medicine, appliance,

or method." Do they mean a medicine or drug, or something administered as a medicine or drug would be? The court thinks this too narrow a construction. It says that an appliance can hardly be said to be a medicine or drug, and a method may or may not involve the administration of any substance, either internally or externally. True, when general terms follow specific words of a like nature, the general terms are presumed to embrace things and methods of the kind designated by the specific words. But for this rule to apply, it must appear that the general words are of a like nature. This was not true here. Undoubtedly the state has the right to determine what acts shall constitute the practice of the healing art, and it may impose conditions on the exercise of that privilege. Having defined the terms it uses, courts should accept the definition given, and not be too subtle in the use of refined distinctions. To save its people from quacks and charlatans, the state has plenary power to prohibit or supervise the exercise of the healing art. Statutes similar to the one in question have been enacted in many states, and they have been held to apply to magnetic healers (State vs. Parks [Ind. Sup.], 59 L. R. A. 190, with notes and briefs); empirics (Musser vs. Chance, 29 Ohio St. 577; Nelson vs. State Ky., 57 S. W. 501); obstetricians (State vs. Welch, 129 N. C. 579); midwives (People vs. Arendt, 60 Ill. App. 89); Christian scientists and osteopaths, although there is a decided conflict in the authorities as to these two classes of healing (Little vs. State, 60 Neb. 749; People vs. Jones, 92 Ill. App. 445; State vs. Buswell, 40 Neb. 158; contra, State vs. Myloid, 20 R. I. 632); and itinerant practitioners (State vs. Blair, 92 Iowa 28). See also State vs. Heath, 101 N W. 429 (reported in THE JOURNAL Jan. 7, 1905). Cases from other states cited and relied on by the defendant's counsel were not in point, for the reason that the statutes therein construed were not so broad as the one here before the court. The Iowa legislature evidently intended to prohibit the practice of the healing art by the use of medicine or any kind of appliance or methods, except on certain named conditions. The language used is very broad and comprehensive, and covers any and every kind of public profession to cure and heal by the use of any method or device. It confines the practice of medicine to the school or schools regarded as lawful, and does not permit quacks and charlatans to impose on the public. The charge against the defendant was that he was practicing as an itinerant physician without the required license, and it was unimportant, the court says, to inquire as to whether or not he had a state certificate, as this would afford him no protection. There may be some doubt as to whether a non-resident may obtain this certificate, maintain his residence in another state, and practice his profession in Iowa without obtaining the additional license required by section 2581 of the Code. But as to this the court expresses no decided opinion at this time. As to the contention that the license tax is unreasonably high, oppressive, and prohibitive, the court says that, being in the nature of an occupation tax, the state undoubtedly had the right to fix it at such sum as it saw fit. While the practice of medicine is often spoken of as a right, it is not, strictly speaking, a right, but a mere privilege, upon the exercise of which the state may impose conditions such as it deems advisable. The title of the act is, "Of the practice of medicine," and, the court says, the subject-matter is sufficiently expressed. It was error to sustain a demurrer to the indictment.

Current Medical Literature.

AMERICAN.

Titles marked with an asterisk (*) are abstracted below.

American Medicine, Philadelphia.

December 31.

1 *Ideal Method of Removing the Vermiform Appendix. H. A. Kelly, Baltimore.
2 Tuberculosis of the Kidney, Ureter and Bladder. J. M. Baldy and Ed. A. Schumann, Philadelphia.
3 Primary Sarcoma of the Stomach: A Report of Three Cases. John A. Sipher, Cleveland.
4 The Reflexes in the Diagnosis of Nerve Lesions Due to Trauma. Henry S. Upson, Cleveland.
5 *The Cause of Death in Cases Operated on of Intestinal Perforation Occurring in Typhoid Fever. J. H. Anderson, Pittsburg.
6 Polyneuritis Complicating Typhoid Fever with Unusual Localization. Alfred Gordon, Philadelphia.

1. **Ideal Appendicectomy Method.**—With a view to devising a method for removing the vermiform appendix which will overcome the difficulties of all methods now in vogue, Kelly has made a pair of crushing forceps with longitudinal grooves on the crushing surface and a bevel above. When this forceps is applied, it requires a force of from 25 to 40 pounds to lock the blades on the appendix, and a force of about 60 pounds to release them after the appendix has been cauterized. The only other special instrument required is the ordinary Paquelin cautery. The method of operation is as follows: The appendix is exposed and the mesoappendix is tied off. A circular suture of fine silk is then laid around its base, about a centimeter distant, but not drawn up. The appendix is then grasped at its base with the forceps and crushed, while just beyond the forceps (distally) it is seized with an ordinary artery forceps to prevent the escape of its contents. Paquelin's cautery is then used to amputate the appendix between the two forceps, when it is laid aside in the grasp of the artery forceps. The crushing forceps, which is to be converted into a cooking, sterilizing, sealing iron, is carefully isolated by tucking dry gauze under each blade, so as to lift the end of the forceps up on a cone, away from all contact with the cecum. The next step, which is the most important one, is to keep the red-hot point of the cautery slowly traveling up and down the groove in the crushing forceps for from 40 to 60 seconds, so as to burn off every vestige of the stump, and at the same time to heat the forceps so thoroughly that the narrow ribbon of crushed appendix in its grasp becomes converted into a translucent, gristle-like substance in which the lumen of the appendix is completely destroyed. The lumen is so effectually obliterated that it never gaps. The final step in the operation is the tightening of the purse-string suture, and the inversion of the cooked base, after which the serosa is carefully united over the whole with another row of fine silk sutures. Kelly has cut off a little piece of the cooked tissue in seven cases and dropped it into a test tube containing agar medium, and in but one case was any growth obtained. The advantages he claims for this method are: Its perfect simplicity. There is at no time any exposure of the infected mucosa, the stump is not ligated or bruised, and thus left as a culture medium for whatever organisms may have lain in it. The appendix is amputated with the cautery and the proximal portion is sterilized and effectively sealed. The inverting sutures are then applied over an area as free from contamination as the rest of the peritoneal cavity.

5. **Cause of Death in Typhoid Perforation.**—Anderson reports his experiences in 21 cases of laparotomy for intestinal perforation. Twelve patients were operated on within 36 hours after the onset of the symptoms. Of these 9 were for perforation and 3 patients recovered. The remaining 3 cases presented symptoms resembling perforation; 1 case was typhoid appendicitis with peritonitis, 1 of peritonitis from mesenteric lymph gland infection, 1 of obstruction due to round worms in the ileum. These 3 cases recovered, making a total of 50 per cent. of recoveries in these 12 cases. The remaining 9 patients were operated on at varying periods of from two to four days after perforation; all died. Local anesthesia was used in 8 cases, the patients being extremely weak and toxic, and all died. In 9 cases the fecal contents of the ileum were removed through the perforation or by incisions. Four patients recovered; 3 were operated on for perforation and 1 for peritonitis from lymph gland infection. The peritoneum was irrigated with normal salt solution in all cases, with special attention to the diaphragmatic peritoneum. In these 9 cases there was a decided amelioration of the postoperative symptoms, which

leads Anderson to believe that irrigation of the bowel is of importance in preventing the toxemia which results from the absorption of poisons from the contents of the paralyzed bowel. He holds that toxemia is quite as important as peritonitis and insists on the institution of drainage.

Medical News, New York.

December 31.

7 *Effect of Hysterectomy on the Sexual Function. H. N. Vineberg, New York.
8 Difficulties of Anesthetization and Their Correction. Victor C. Pedersen, New York.
9 Hyperacute Melancholia: Case. R. N. Todd, Indianapolis.
10 *The Finsen Method. Milton Franklin, New York.
11 *Antiseptic Treatment of the Puerperal Woman. L. Kolipinski, Washington, D. C.
12 Cerebral Palsies in Children. J. M. Alkin, Omaha.

7. **Hysterectomy and the Sexual Function.**—The conclusion Vineberg draws from his own experience and from his study of the literature on the subject is that whatever other effects the removal of the uterus and ovaries may have on the female economy, it has little or none on her sexual feelings.

10. **The Finsen Method.**—Franklin describes the development of the Finsen method of treating tuberculous diseases of the skin by exposure to the ultra-violet or chemical rays of the spectrum. The description of the apparatus used is complete and doubtless will be of considerable assistance to those who employ this method. Franklin is of the opinion that the Finsen method, when properly practiced, and this necessitates the employment of suitable apparatus, free from glass and of sufficient power, is superior to all known procedures for the treatment of lupus vulgaris. This opinion is the result of close observation of the results obtained at the only place where the method has been properly employed. He says the use of the *x*-ray has been too limited to warrant the positive assertion that it is a specific in lupus. The cases that have been positively cured by the Finsen method are almost without number, while those cured by the *x*-ray are few and scattered and their authenticity shrouded in uncertainty.

11. **Antisepsis in the Puerperium.**—A word is said in favor of irrigation after delivery by Kolipinski, who considers the woman delivered of the new-born child a surgical subject, the victim of wounds of the contused and lacerated varieties, of the uterine cervix, the vagina and its outlet, injuries which, when not protected by art, are the chief cause of puerperal infection. A superficial torn wound of this or of any other part of the body, says Kolipinski, requires surgical treatment which is both curative and preventive. One of the best in thoroughness and efficiency is irrigation, and douching is one form of irrigation. He has used antiseptic douching in normal puerperal cases, and the effects are found to be in every way satisfactory, both in the feeling of general comfort to the patient and in the avoidance of septic fever, or its speedy destruction. He has followed the rule that it is better to flush with too much rather than with too little, and accordingly his method consists in washing out the vagina, the cervix and the vulva, the patient being in the proper position, with a gallon of a solution of boric acid in boiled tepid water, one and one-half drams of powdered acid to the pint. This is repeated three times a day for the first week and then discontinued altogether. The antiseptic vulvar pad is dispensed with or its use left to the discretion or wish of the nurse or patient. Septic fever has not been found to appear in any of the author's normal cases, and the patients have all been well satisfied with the result.

New York Medical Journal.

December 31.

13 *The Value of Stereoscopic Skiagraphy. M. K. Kassabian, Philadelphia.
14 Rôle of the Thyroid Gland in Exophthalmic Goiter Associated with Paralysis Agitans. Alfred Gordon, Philadelphia.
15 *Cysts of the Mesentery: a Case. L. S. McMurtry, Louisville.
16 Surgical Diseases of the Sigmoid. H. D. Niles, Salt Lake City.
17 *Enuresis and Its Treatment. J. Ullman, Buffalo.
18 *Unusual Case of Friedreich's Ataxia. R. N. Van Wart, New Orleans.

13. **Stereoscopic Skiagraphy.**—Kassabian details the principles of this method, the technic for making the skiagrams and the methods of examination of stereoskiagrams. The method is useful for demonstrating the structure of bones, studying the mechanism of joints, localizing foreign bodies and diagnosing fractures, showing the exact position of the fragments, the amount of overlapping or separation, the degree of apposition in deformities, etc. Although the method requires more time and care than ordinary skiagraphy, the results obtained with it compensate for these seeming disadvantages.

15. **Cysts of the Mesentery.**—The case reported by McMurtry was one of sero-sanguinous cyst of the mesentery, arising in the colonic mesentery near the left kidney in a woman, aged 67, who complained of digestive disturbances. The displacement of the colon by the tumor was such that the bowel seemed to enter and emerge from the tumor. The cyst wall was quite thin from distention. The left fallopian tube was attached to the tumor and bled freely when separated. There was no pedicle proper to the tumor, which evidently originated and developed between the folds of the mesentry. The area of enucleation was drained through the lower angle of the abdominal incision, and the abdomen closed in the usual way. The patient made a perfect recovery.

17. **Treatment of Enuresis.**—Ullman says that a solution of atropin, 1 grain to 2 ounces of water, 5 drops to be given at 4, 7 and 10 p. m., together with certain movements and hygienic and suggestive methods to which he refers, will usually give excellent results in the treatment of purely neurotic cases. The movements referred to are as follows: 1. The rectum is freed of feces and massage is applied to the sphincter vesicæ by means of the index finger. The child lies in the lithotomy position and, with the index finger in the rectum, the sphincter vesicæ is gently tapped for from one-half to one minute. 2. A deep circular massage is applied over the hypogastric region for from two to three minutes. 3. The patient, lying in the dorsal position, with the knees tightly drawn together, is told to resist while the knees are drawn apart, and, with the knees widely separated, he is asked to resist while they are drawn together. The same resistant adduction and abduction movements are carried out with the legs. These movements occupy about two minutes. 4. The patient, standing against a wall or door, crosses and recrosses one thigh over the other for a period of five minutes. 5. The patient is next taken across the knee and with the side of the hand the lumbar and sacral regions are sharply tapped very frequently, thus giving a vibratory sensation.

18. **Friedreich's Ataxia.**—This unusual case is presented by Van Wart to show that cases of hereditary ataxia are not necessarily doomed to chronic invalidism. His patient, an adult male, 44 years of age, traced his illness back to the sixth year of life. While never able to perform any heavy work, he could plow, drive and do most of the lighter work about the farm. When 30 years of age he became so disabled that he had to use crutches, and he then became a school teacher, following this occupation until two years ago, when the increasing ataxia in his hands compelled him to abandon this work also. His general condition was good.

Medical Record, New York.

December 31.

19 On What Lines Is the Treatment of Malignant Disease Advancing? Robert Abbe, New York.
20 *Problems Relating to Simple Ulcer of the Stomach. Beverley Robinson, New York.
21 *The "Yolk Cure" in the Treatment of the Underfed. Heinrich Stern, New York.
21½ Trachoma. Albert C. Bardes, New York.
22 Present Attitude Toward the Treatment of Prostatic Hypertrophy. Martin W. Ware, New York.

20. **Gastric Ulcer.**—Robinson considers this subject as it presents itself to the physician and to the surgeon. The cases in which a surgical operation is most likely to effect a cure that it places the knot between the apposed peritoneal sur-

are those of acute ulcer in which hemorrhage occurs suddenly, is profuse, repeated, and the outcome too eminently fatal to permit of the use of medicinal agents or hygiene and time, or those of chronic ulcer, in which the frequent and profuse hemorrhage may be taken as an indication that the degenerated gaping artery of the diseased surface may be obstructed for a while with a clot but will soon, through its removal, bleed afresh. An operation affords the only assurance of a cure. The same is true when perforation of the stomach has occurred, complicating any form of ulcer. The sooner the operation is performed the greater the chances of saving life. Although instances of cure without operation are recorded, they are very infrequent, and unless special conditions prevail, such as an empty stomach, very small opening on the ulcer in the stomach, chronic adhesions to adjacent organs, etc., even these instances would not have been possible. Robinson's attitude toward the surgical treatment of gastric ulcer is rather conservative, for as yet the results obtained from operative treatment are inferior to those obtained by proper medical care, especially in cases occurring among patients in affluent circumstances who seek medical advice early and who can carry out with intelligence the necessary dietary and remedial regimen. Hemorrhages in such cases are infrequent and slight and perforations occur rarely. Robinson's treatment is that of others who have given this subject considerable attention. One food which he mentions as being of special value when hydrochloric acid is deficient in the stomach is buttermilk, freshly made, and freely taken. He says that in several cases its use appears to have been followed by a permanent cure. In the treatment of the accompanying anemia he prefers to make use of the vegetable forms of iron rather than the mineral, which may be more or less irritating locally by their acidity and perhaps slightly corrosive action.

21. **The "Yolk Cure" of the Underfed.**—Stern again calls attention to the fact that underweight and underfed are not synonymous conceptions; that an individual of underweight but in metabolic equilibrium is not underfed, and that in the real underfed there is always a traceable disease or disorder which, directly or mediately, prevents normal digestion or complete utilization of food stuffs, giving rise thereby to bodily decline. It is absolutely useless to attempt to check bodily decline by forced feeding without paying attention to the condition of the digestive organs and the general assimilatory qualities. As soon as the organism is able physiologically to dispose of the ingesta, the tide of body decay is stemmed in all those instances in which some digestive assimilative disturbance, directly or remotely, stood at the foundation of the malnutrition. The treatment of the so-called wasting diseases resolves itself into the prevention of waste. The most potent factor in maintaining physiologic digestion and assimilation is an adequate food supply, one which is sufficient as regards quantity and which the organism is able to anabolize. Stern believes that the diet which he has termed the "yolk cure," one in which the greater portion of the calories yielded and in which the egg yolk forms the only fatty substance, is ideal in these conditions. This yolk cure may be modified as needed. The yolk of the hen's egg in the raw or half raw state is digested readily, is well borne, contains a diastatic ferment, does not exhibit fermenting qualities, stimulates gastric secretion, restores nerve force and also contains lecithin. From eight to twenty calories a day and kilogram of body weight are necessary to overcome the condition of underfed. An average yolk contains between five and six grams of fat, representing about fifty calories. The author gives explicit instructions for carrying on this particular dietary and gives a sample menu destined for a consumptive whose alimentary system admits the ingestion of some carbohydrates and of almost normal amounts of proteids.

Boston Medical and Surgical Journal.

December 29.

23 *Ultimate Results of Cauterization of the Lower Turbinate, with Therapeutic Suggestions Based on Histologic Findings. J. L. Goodale, Boston.

24 Standard Records of the Leucocytes in Normal Blood for Reference in Clinical Work. H. F. Hewes, Boston.

25 *Improved Method of End to Lateral Intestinal Anastomosis. Alfred H. Gould, Boston.

26 Bacterial Counts of Boston's Milk Supply. H. W. Hill and F. H. Slack, Boston.

27 Isolation Methods and Precautions in Contagious Disease. F. P. Denny, Brookline, Mass.

28 Suspected Homicide Proved to Be Suicide by Strychnia. F. J. Canedy, Shelburne Falls, Mass.

23. **Cauterization of Lower Turbinate.**—The object of Goodale's paper is to give the results of a histologic examination made into a series of cases which had been previously cauterized for swelling or hypertrophy of the lower turbinates and which had reported later with a recurrence of nasal obstruction. Goodale found that caustic applications to the nasal mucous membrane may cause a loss of the columnar ciliated epithelium with a replacement of this by cells of squamous type. That immediately below the cauterized mucous membrane new connective tissue may be formed, which extends downward to a depth dependent on the intensity of the trauma. That the contraction of the tissues following caustic applications is due to the contraction of this new form of connective tissue, and the consequent compression both of the lymph sinuses and of such cavities as the lumina of blood vessels and glands. That repeated superficial applications of caustics tend to the formation of connective tissue immediately beneath the epithelium, which by its contraction may constrict the lumen of the ducts of the glands and lead to cystic dilatation of the latter, thus contributing to a subsequent return of the nasal obstruction. As to the proper mode of cauterizing: If it is desired to contract a relaxed or distended mucous membrane, we should endeavor to reach its deeper layers where the lymph spaces and blood vessels are situated, producing at the same time a minimum amount of disturbance to the membrane itself. This result is best attained by deep linear applications, as narrow as possible, of chromic acid, or of the galvanocautery, or by submucous cauterization. If it is simply desired to diminish the nasal fluid we may advantageously sacrifice a certain number of canaliculi in the basement membrane by broad, superficial applications to a definite area of the septum and lower turbinates posteriorly. In the event of recurrence of the enlargement after cauterization, it is preferable to dispense with further cauterizing and to proceed immediately to the excision of a definite amount of obstructive tissue.

25. **Improved Method of Intestinal Anastomosis.**—This is the first of a series of four papers to be published by Gould illustrating changes in technic. The first paper describes an improved method of end-to-lateral intestinal anastomosis. The open intestine is split along its free border for about one and a half inches, and the corners, which project, are trimmed down with scissors so that an oblique opening is left with edges rounded out at the mesenteric border, thus allowing more tissue for sewing. The receiving intestine is opened on its free edge for about two inches, and the distal end of this cut is fastened by a mattress stitch to the mesenteric border of the entering bowel. Guides are placed, with the ends left inside, in such a way that they will invert the cut edges and expose the mesenteric third of the entering bowel side by side with a symmetrical portion of the cut edges of the receiving bowel. On tightening the guides, the remainder of the circumference falls away and allows easy introduction of the first layer of stitches. This layer is a continuous over-and-over No. 0 chromic stitch which starts from one guide and goes directly across to the other, piercing all coats. When the second guide is reached other guides are placed on the sides at regular intervals to assist in accurately matching the cut edges. When the free ends of the dorsal cuts are reached they are altered to make them fit one another, and the suture continued around to the opposite side, where it is tied to the long end left at the beginning of the stitch. The second step is the introduction of an interrupted sero-muscular stitch. Gould has modified the mattress stitch by placing the loop near the cut edge. This rolls the protruding edges down and approximates the peritoneum without the necessity of tucking in. This change might be applied to both sides of the stitch except for the objection

faces. The details of this operation which Gould considers original are: 1. The method of trimming the invaginating gut. 2. The method of placing the first layer of stitches. 3. The new mattress stitch.

Lancet-Clinic, Cincinnati.

December 31.

29 *The Choice and Use of Medical Literature. Hugh T. Patrick, Chicago.
30 Why So Many Errors in the Diagnosis of Graves' Disease? J. H. Stealy, Freeport, Ill.

29. This article appeared in THE JOURNAL, Dec. 10, 1904.

St. Louis Medical Review.

December 24.

31 Report of a Case of Hypertrophied Prostate, with a Remarkable Number of Calculi in the Bladder; Operation in Successive Stages; Recovery; Presentation of Patient. Bransford Lewis, St. Louis.

University of Pennsylvania Medical Bulletin, Philadelphia.

November.

32 Conjunctivitis Nodosa, with Histologic Examination. G. E. de Schweinitz and E. A. Shumway, Philadelphia.
33 *The Etiology of Congenital Absence of the Tibia. James K. Young, Philadelphia.
34 *Retrodisplacement of the Uterus. H. D. Beyea, Philadelphia.
35 A Practical and Simple Apparatus for Collecting Blood Serum. D. Rivas, Philadelphia.
36 Protozoan of Scarlet Fever; Preliminary Report. Charles W. Duval, Philadelphia.

33. **Congenital Absence of Tibia.**—From a careful examination of cases under his observation, and from a thorough investigation of the literature on the subject, Young is of the opinion that congenital absence of the tibia is due to an injury received in the early months of fetal life, usually about the third month. The cases presented by him would seem to prove that a sudden and a violent pressure on the uterus which would be sufficient to cause inflammation of the soft parts, but not of sufficient force to injure or fracture the bones, would lead to an amniotitis followed by hydramnios which would produce the exact conditions found in these deformities.

34. **Retrodisplacement of Uterus.**—Beyea's article includes the report of a statistical study of 465 cases of retrodisplacement of the uterus operated on by a method of ventrosuspension of the uterus, abdominal primary fixation of the fundus uteri to the anterior abdominal wall, and secondary to ligamentary suspension. The author has used this method for eleven years in 465 cases and it has always proved an efficient operation, has never been complicated, and never produced abnormal gestation nor complicated labor. In order to obtain these results it is necessary to secure the uterus to the anterior abdominal parietes, forward, in an exaggerated normal position, so that in the succeeding weeks, through the mobility of the organ, its traction on the abdominal walls, with, for instance, distension of the bladder, and through change in tension of the abdominal walls, a ligament is formed or pulled out to maintain the uterus in about its normal position, until the pathologic changes described disappear and the normal conditions of uterine support are restored. This ligament must be of just sufficient strength to maintain the uterus forward as a guy rope; must not be attached to nor involve a wide surface of the uterine parenchyma, and the tissue forming the ligament must be of such a character as to undergo hypertrophy or stretching during the growth of the uterus in gestation. Beyea addressed inquiries to the 465 women operated on in the past eleven years and received replies from 272. Of this number, 231, 85 per cent., say that they have been completely relieved and enjoy excellent health; 28, 10.5 per cent., state that they have been benefited, the greater part of the symptoms having been relieved; 13, 4.5 per cent., assert they have received no benefit. The improvement has been lasting in 225. Backache was completely relieved in 215; benefited in 39, and not improved in 17 cases. Headache was completely relieved in 228; benefited in 32, and not improved in 12. Nervousness was completely relieved in 189. The question as to the gain in weight is interesting. There were 63 who failed to take on flesh, and 9 have lost in weight. The remainder all gained between 2 and 40 pounds in weight. As to the time when improvement began, 55 stated that improvement began immediately or very soon after they reached home; 72 began to improve in from one to five months after the operation; 58 in from six to eleven months; 26 did not receive full benefit until a year had passed; 4 for eighteen months and 4 for two years. Beyea has personal knowledge of 5 recurrences of the displacement. In 3 it occurred before the patients left the hospital, in 2, as a result of pneumonia, the coughing causing such a strain on the abdominal walls as to sever the attachment, and in the other the attachment was separated by the resident physician in removing the sutures from the cervix. Another woman, regardless of advice, did heavy lifting immediately after returning home, and the retrodisplacement recurred. In the other case the uterus was retroverted and on opening the abdomen again the ligament was seen attached to the anterior surface of the uterus well below the fundus. Of the 272 women, 153 are married, and of these, 41 have been pregnant since operation; 37 have gone to term and borne a living child; 5 have twice borne a child, 2 having given birth to twins; 1 twice. In none of the 47 labors was there a complication which could be attributed to the operation. Nine of the 153 women have aborted or miscarried, 5 twice, all before the sixth month. There was one death, which occurred eighteen hours after a cervical dilatation and ventrosuspension of the uterus, the operation lasting 30 minutes. The postmortem failed to reveal the cause of death, and the conclusion was that death resulted from surgical shock, for there was a rapid failing heart action. This makes the mortality a little less than .2 of 1 per cent.

Chicago Medical Recorder.

December 15.

37 *Experiments with Radium in Some Nose, Throat and Ear Diseases. Joseph C. Beck, Chicago.
38 *Cases of Pus Infection Simulating Pulmonary Tuberculosis. Robert H. Babcock, Chicago.
39 Bronchoscopy for Foreign Bodies in the Bronchial Tubes. E. Fletcher Ingals, Chicago.
40 Gynecology from the Standpoint of the Neurologist. Archibald Church, Chicago.
41 *Observations on the Different Forms of Operations for the Correction of Septum Deformities. Charles M. Robertson, Chicago.
42 Abnormal Labor. Henry B. Hemenway, Evanston, Ill.
43 Pneumonia Complicating Pregnancy. Darwin R. Stockley, Evanston.
44 Diagnosis of Malignant Abdominal Tumors. G. W. Green, Chicago.
45 Instrumental Treatment of Chronic Gonorrhea. E. A. Fischkin, Chicago.

37. **Experiments with Radium.**—Beck reports his results accruing from the use of radium in the treatment of nose, throat and ear diseases. In a case of primary tuberculosis of the septum, 33 applications of radium bromid were made, each lasting from five minutes to half an hour, given at first every day, later three times a week and finally once a week. The headaches and pains disappeared after the second treatment. After about six treatments the mass looked better and did not bleed so easily on touch. After twelve treatments the patient was able to breathe better, and since then there has been a continued improvement and a diminution in the size of the growth. A case of nasal syphilis was treated intranasally with the result that there was relief from pain and a correction of the odor. In a case of sarcoma of the nose, the radium gave relief from pain and produced sleep, saying nothing of the possibility of the prevention of the recurrence of the malignant growth. Very satisfactory results were also obtained in a case of sycosis. A case of lingua nigra was cured by seven exposures. In a case of secondary tubercular laryngitis the radium failed to give any relief, as also in a case of carcinoma of the larynx with glandular involvement. In a case of chronic suppuration of the middle ear with necrosis, the odor was markedly modified and the discharge lessened. Pains in the ear were less marked. In a number of other painful conditions Beck has found the radium to afford more or less relief from the pain.

38. **Pus Infection Simulating Tuberculosis.**—The first case related by Babcock presented all the constitutional symptoms of pulmonary tuberculosis, but the lungs, though not normal, did not furnish any signs of disease. A thorough examination led Babcock to the belief that it was a case of septicemia originating in a pelvic peritonitis with purulent and circumscribed exudate, and that the indefinite lung find-

ings were due to some pulmonary change resulting from the infection and feeble cardiac action. This belief was confirmed at the operation. The second case was one of suppurative peritonitis due to trauma. The lung findings were very similar to those described in the first case. Three other cases were ambulatory and sought medical advice because of symptoms which they feared were due to an incipient pulmonary tuberculosis. One of these cases was found to be a suppurative appendicitis; a second was a case of cholecystitis, and a third a case of pyosalpinx.

41. **Correction of Septum Deformities.**—Robertson divides his cases into four groups: First, those which may be considered deviations of slight degree. A great majority of these may be treated by the removal of the excess of mucous membrane, cartilage or bone at the apex of curvature. Second, cases where the removal of the apex of the deflection will not suffice. In this class of cases some operation, such as the removal of v-shaped sections or a flap operation, is necessary to render the nostrils patulous. Third, cases which present irregular masses, marked deviations, and probably deep grooves or clefts on the side of the concavity. A window resection is the indicated operation. Fourth, cases in which from internal and violent injury the nasal bones are dislocated or fractured, and the septum is wrinkled or broken, causing obstruction by deflection to one or both sides. In this class of cases an external operation is advised. Speaking of the different forms of operative procedure, Robertson says that the sawing off of a ledge or spur will often give more room than would appear possible at the pre-operative examination. Great care in saving mucous membrane in these cases is not so important as is usually believed, as it is generally hypertrophied and, therefore, a diseased tissue. The precaution of avoiding a perforation is essential. The author comments on the impracticability of v-shaped operations, as made by files and knives, on small deviations, the consequent packing into space until the septum has regained its rigidity. Crushing operations are usually failures; they are brutal and unsurgical, and impracticable because it is impossible to make the circumference of an arc fit into a space the length of a segment of the arc. In most cases where there is no external deformity the Gleason method is the best; packing is necessary for only a short time. It is essential to save all tissue that is not diseased and is still functionating. He also comments on the absence of firm cartilaginous support in the window resection operation, and the liability of one or more perforations occurring during operation or healing.

Bulletin of The Johns Hopkins Hospital, Baltimore.

December.

46 *Multiple Primary Carcinomata of the Ileum. C. H. Bunting, Baltimore.
47 A New Office Irrigating Stand. George Walker, Baltimore.
48 Concerning a Case of Suppurating Myositis Caused by Micrococcus Gonorrheæ (Neisser). Norman MacL. Harris and Louis W. Haskell, Jr., Baltimore.
49 Bacterium Cyaneum: A New Chromogenic Organism. Ethel L. Leonard, Los Angeles, Cal.

46. **Multiple Primary Carcinoma.**—Bunting reports two cases. The first, male, aged 52, died from cardiac disease and at the autopsy there were found in the middle portion of the ileum six nodules scattered over a length of intestine of about 50 cm. These nodules varied slightly in size and were situated beneath an intact epithelial surface. They were of a definitely carcinomatous structure, apparently taking their origin from the epithelium of the crypts of Lieberkuehn. There were no metastases in any other organs. The evidence at hand is reviewed to show that all these nodules were primary. The second patient, male, aged 59, was taken ill with symptoms referable to intestinal obstruction and a palpable mass in the right iliac fossa. Exploratory operation revealed an inoperable carcinoma in the cecal region and a second mass in the sigmoid flexure. Carcinomatous tumors were found in the ileum, cecum and sigmoid. They were of the cylindrical-celled adeno-carcinomatous type, with ulcerated surfaces, without involvement of the peritoneum, and without metastases in other organs.

American Journal of Obstetrics, New York.

December.

50 *The Limitations of Operative Intervention in Cancer of the Cervix Uteri. Edward A. Balloch, Washington, D. C.
51 Ectromelus: Case. Henry F. Lewis, Chicago.
52 *Streptococci in Air of Hospital Operating Rooms and Wards During an Epidemic of Tonsillitis. Edward C. Rosenow, Chicago.
54 Movable Kidney. W. M. Sprigg, Washington, D. C.
55 *Conservation of the Natural Resistance of Patients in Surgical Work. Robert T. Morris, New York.
56 An Historical Résumé of Tuberculous Meningitis from Hippocrates to the Middle of the Nineteenth Century. Charles G. Cumston, Boston.
57 Infantile Intestinal Obstruction. J. W. Hyde, Brooklyn.
58 Chondrodystrophia Fetalis. Joseph Brown Cooke, New York.
59 A Case of Indirect Traumatic Rupture of the Uterus in the Eighth Month of Pregnancy; Amputation of the Uterus; Recovery. Joseph B. De Lee, Chicago.
60 Conservatism in Pelvic Surgery. Hunter Robb, Cleveland, Ohio.
60½ Gunshot Wound of the Abdomen Involving the Hip Joint; Report of a Case, with Remarks. L. H. Laidley, St. Louis.

50. **Cancer of the Cervix Uteri.**—After a thorough consideration of this subject, Balloch concludes that the present status of operative intervention in cancer of the cervix uteri is that it is practically useless in cases as they usually come under the notice of the surgeon. In the operable cases the only procedure offering any reasonable prospect of a permanent cure is the so-called radical operation by the abdominal route. Vaginal hysterectomy is useless as a radical operation, but has a place as a palliative measure. Balloch urges that the upper part of the vagina is deserving of more attention, from the standpoint of recurrence, than it has heretofore received. The most promising outlook for these cases, he continues, lies in early diagnosis, combined with thorough and complete operative measures. The starvation of the disease by cutting off its blood supply is a palliative measure worthy of trial.

52. **Streptococci in Air.**—Rosenow made some careful observations to explain the probable source of certain accidental, postoperative, peritoneal infections and calls attention to the following facts: 1. The infections occurred only in the most extensive, prolonged, intraperitoneal operations. 2. Owing to the large number of operations, the operating rooms were often in use from morning until night. These rooms were seldom disinfected. 3. The accidents occurred during the winter months; no adequate system of ventilation was in vogue anywhere in the institution. 4. During this time a number of patients suffering from very severe streptococcus infections were being dressed in the general dressing rooms of the hospital. The same carts on which these patients were dressed were used in transporting other patients to the operating room. 5. An epidemic of streptococcus angina prevailed among internes, nurses, attendants and patients. 6. The streptococcus pyogenes was responsible in each instance. Rosenow is convinced that there is what might be called "hospital air," which, under circumstances such as those mentioned, may become rich in pathogenic bacteria. The streptococcus seems to become more virulent or more numerous during an epidemic of angina due to this cause. Rosenow advises that persons suffering from such an affection should be isolated, and that the operator, the assistant and all connected in the handling of surgical material before and during the operation should wear a proper mouth covering. All sterile surgical material should be exposed to the air as little as possible. All operating rooms should be frequently fumigated with an efficient disinfectant.

55. See abstract in THE JOURNAL of October 8, page 1081.

Annals of Gynecology and Pediatry, Boston.

December.

61 Three Cases of Postoperative Vomiting and the Technic of Some Mechanical Means of Treatment. Richard F. Chase, Boston.
62 Postoperative Anuria. Pathogenesis of Anuria in a Case of Vaginal Hysterectomy for Cancer, with Experimental Research on the Cadaver. (To be continued.) Giuseppe Betagh.
63 *"Stem Pessary for Dysmenorrhea." J. H. Carstens, Detroit.
64 Cystoscopic Measures an Adjuvant in the Treatment of Many Conditions Found in Women. F. M. Johnson, Boston.

63. **Stem Pessary for Dysmenorrhea.**—The points brought forward in this article are substantially the same as those

emphasized in the article by this author which appeared in THE JOURNAL Dec. 10, 1904, page 1740.

Therapeutic Gazette, Detroit.

December 15.

65 Hookworm Disease (Uncinariasis). Thomas W. Dorsett, Willacoochee, Ga.
66 Insomnia and Sleep-induction. Henry B. Hollen, Detroit, Mich.
67 *The Rational Treatment of Erysipelas, with Case Reports. L. C. Davis, Harrison, Neb.
68 *Adrenalin Chlorid in Hemorrhage Complicating Typhoid Fever. M. Clayton Thrush, Philadelphia.
69 Attempted Suicide by Morphin Defeats Suicide by Potassium Cyanid. Henry S. Wieder, Philadelphia.
70 The Therapeutic Uses of Hamamelis Virginica. H. R. Coston, Birmingham, Ala.

67. **Treatment of Erysipelas.**—Davis details his experiences with antistreptococcic serum in the treatment of erysipelas. As the site of injection he prefers the anterior portion of the thigh, about midway between the knee and hip joint, in the body of the quadriceps extensor muscle. The amount of serum to be used will vary in each case. He usually begins by giving 10 c.c. and repeating the dose as often as is necessary. Twenty c.c. may be given at the beginning if needed. It is essential to give enough. His results from its use have been uniformly satisfactory.

68. **Adrenalin Chlorid in Typhoid Hemorrhages.**—Thrush has had an extensive experience in the use of adrenalin chlorid in the treatment of hemorrhage complicating typhoid and considers it superior to other astringents. The drug is particularly valuable in that it is also a decided vascular stimulant, stimulating the heart directly, and by contracting the arterioles it raises arterial tension. He gives 20 mm. doses (1 to 1,000) hypodermically every three hours until the hemorrhage is entirely controlled, when it can be administered per os in 10 mm. doses for the next 24 hours. The usual methods of applying ice to the abdomen, the elevation of the foot of the bed, etc., are recommended as valuable adjuncts in the treatment.

Journal of the Association of Military Surgeons, Carlisle, Pa.

January.

71 Observations in the Russo-Japanese War. Louis L. Seaman.
72 The Apron Stretcher. George A. Lung.
73 *The Operation for the Radical Cure of Varicocele. Augustin Aguirre.
74 Organization and Work of the Maritime Quarantine Service of the Isthmian Canal Commission. Henry R. Carter.

73. **Radical Cure of Varicocele.**—Aguirre describes a new method which consists in employing at the same time transverse resection of the scrotum and the excision of the bundle of varicose veins. The patient is placed flat on the back, the lower limbs slightly adducted. The operation is divided into four stages. In the first stage both testes are pushed toward the inguinal canals, and a pair of very much curved clamp forceps are placed crosswise, pinching up that part of the scrotum to be resected. With a bistoury all the tisues are divided. The forceps are then removed. In the second stage all the blood vesels cut, however small they may be, should be ligated. Complete hemostasis having been thus secured, the third stage is proceeded with, that of dissecting and ligating the varicose veins. The veins once isolated, a double thread of catgut is passed to make the ligatures on the two ends of the varicose veins, and the resection is done between the ligatures. The fourth and last stage comprises that of suturing the wound. This is done by planes, the deepest with catgut and the superficial ones with Florentine horsehair. An asptic dressing covers the wound. This procedure has the following advantages: 1. The resection of the scrotum has for a result the formation of a real and natural suspensory, which holds the testes in good position and prevents a recurrence of the trouble. 2. The wound is of sufficient size to permit of an operation for double varicocele, cyst of the cord, gumma of the testes, etc. 3. The dissection of varicose veins is made easy because one sees at a glance the component parts of the cords and thus avoids wounding the spermatic artery and the vas deferens. The author has used this method in 60 cases. Healing by first intention has followed in all, and the final result has invariably been satisfactory. There has been no recurrence in any case.

New Orleans Medical and Surgical Journal.

December.

75 Puerperal Insanity. E. M. Hummel, Jackson.
76 Acute Suppurative Osteomyelitis; the Importance of Its Early Recognition and Treatment. J. F. Ochsner, New Orleans.
77 Some Remarks on the Treatment of Club Foot by the Method of Lorenz. Report of Cases. J. M. Batchelor, New Orleans.
78 Extrauterine Pregnancy; Its Diagnosis. Report of Cases. Isaac I. Lemann, New Orleans.

Louisville Monthly Journal of Medicine and Surgery.

December.

79 Malignant Growths of the Eye. Adolph O. Pfingst, Louisville.
80 Echinacea Angustifolia. C. S. Chamberlin, Cincinnati.
81 Insults to the Viscera in Abdominal Surgery. Edward Lee Pearce, Louisville.
82 Case of Tetanus in a Child Four Years Old Cured by the Use of Antitetanic Serum. J. M. White, Fort Thomas.
83 A Study of a Case of Bright's Disease. Orville A. Kennedy, Louisville.
84 Hemorrhagic Typhoid Fever, with Report of a Case. B. F. Zimmerman, Louisville.

International Journal of Surgery, New York.

December.

85 A Consideration of Septal Spurs and Deflections. Harmon Smith, New York.
86 Tympanites. J. O'Day, Oil City, Pa.
87 Cranial Injuries. Shelby C. Carson, Greensboro, Ala.
88 Colopexy of the Sigmoid Flexure for Prolapse of the Rectum. Albert L. Bennett, Denver.

Medical Times, New York.

December.

89 Illustrating Cases Due to Eye-strain, with Explanatory Remarks Concerning Them. Ambrose L. Ranney, New York.
90 The Transmission of Phthisis, with a Study of Medical Geography. N. E. Barrett.
91 Nature and Treatment of Chronic Glandular Enlargement in Children. A. N. Ulrich.
92 The Nature and Treatment of Hepatic, Cardiac and Renal Dropsy. A. M. Leonard.

Journal of the Kansas Medical Society, Wichita.

December.

93 Trachoma, or Granulated Lids. Edw. P. Pitts, Atchison.
94 Retrospective View of the Treatment of Pneumonia. D. W. Humfreville, Waterville.
95 Intestinal Union by the Aid of a Hollow Candle. J. D. Riddell.
96 A Case of Deformity Following Fracture of Shaft Femur; Osteotomy and Result. E. E. Morrison, Great Bend.
97 The Influence on Valvular Lesions on Pulmonary Tuberculosis. R. C. Fear, Gardner.
98 Pelvic Suppurations. Charles J. Simmons, Lawrence.

Journal of Mental Pathology, New York.

Nos. 3-4.

99 Two Cases of Familial Heredospinal Atrophy (Friedreich's Type), with One Autopsy, and One Case of So-called Abortive Form of Friedreich's Disease. (Continued.) G. Mingazzini and G. Perusini, Rome, Italy.
100 Case of Left Hemiplegia, with Right Hemianesthesia of Traumatic Origin without Organic Lesion of the Spinal Cord. Pietro Timpano.

American Medical Compend, Toledo.

December.

101 The Anesthetics; Chloroform and Ether. James T. Lawless, Jr., Toledo.
102 The Borderland of Consumption. Paul Paquin, Asheville, N. C.
103 Report on the Use of Acetozone in Septicemia. H. B. Gooding, Leetonia, Ohio.
104 Atrophic Nasal Catarrh. L. R. McCready, Grand Rapids, Mich.

Medical Standard, Chicago.

December.

105 Treatment of Congenital Club-foot and the Modeling Redressment. Frederick Mueller, Chicago.
106 The Non-operative Treatment of Retrodisplacements of the Uterus. Channing W. Barrett, Chicago.
107 Scientific Struggle to Cure Pulmonary Tuberculosis in the United States Since 1882. Homer M. Thomas, Chicago.
108 The Cure of Chronic Suppuration of the Accessory Nasal Sinuses. William L. Ballenger, Chicago.
109 Autointoxication and Its Treatment. Heinrich Stern, New York.

Maryland Medical Journal, Baltimore.

December.

110 The Rôle Played by Nephritis in Obstetrics. George W. Dobbin, Baltimore.
111 Fournier and His Work. John Ruhrah, Baltimore.

Indiana Medical Journal, Indianapolis.

December.

112 Some Camp-fire Reflections. Theodore Potter, Indianapolis.
113 A Case of Fused Kidneys. August G. Pohlman, Bloomington.
114 Diphtheria Epidemic in the Miami County Orphans' Home; Successful Treatment by Antitoxin; Fifty-six Cases, with Three Deaths. Perry C. Bentle, Mexico, Ind.

Cleveland Medical Journal.

December.

115 *Clinical Studies in Arteriosclerosis. Alfred Stengel, Philadelphia.
116 Value of Various Methods of Estimating Total Nitrogen, Ammonia and Urea in the Urine. Howard G. Haskins, Cleveland.
117 Surgical Treatment of Paralytic Deformities. Walter G. Stern, Cleveland.

118 Some Observations on Hemoptysis. Guy H. Fitzgerald, Albuquerque.
119 Notes on Refraction and Eye-strain in the Case of 206 Second-grade School Children. Leigh K. Baker, Cleveland.

115. See abstract in THE JOURNAL, vol. xlii, page 1377.

FOREIGN.

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

Annales de l'Institut Pasteur, Paris.

Last indexed XLII, page 1825.

1 (XVIII, No. 6, June.) Sur la vie et les travaux d' Emile Duclaux.
2 *Le Serum antistreptococcique et son mode d'action. Besredka.
3 Role des streptocoques au cours de la scarlatine (scarlet fever). Besredka and Dopter.
4 Isolement de la zymase dans les tissus animaux et végétaux. P. Mazé.
5 Rôle des microbes dans la fermentation alcoolique. P. Mazé and A. Perrier.
6 Sur la fermentation mannitique. U. Gayon and E. Dubourg.
7 Sur quelques propriétés physiologiques des différents venins de serpents. F. Noc.
8 *Action du sérum de cheval chauffé injecté dans le péritoine (hot horse serum). Son utilisation en chirurgie abdominale. R. Petit.
9 (No. 7.) Etudes sur quelques épizooties de l'Indo-Chine. Yersin.
10 Etude du tétanos dit médical ou spontané. H. Vincent.
11 Anatomie pathologique des lésions syphilitiques observées chez les singes anthropoides (apes). Arnal and P. Salmon.
12 *La résorption de l'acide urique et de l'urate de soude. J. J. van Loghem (Amsterdam).
13 (No. 8.) *Etude de l'epuration des eaux résiduaires des villes et des industries (purification of residual water). A. Calmette.
14 L'infection mixte dans la tuberculose chirurgicale. N. Petroff (St. Petersburg).
15 Les anticorps coutre les spirilles de la septicémie des poules (antibodies in poultry septicemias). C. Levaditi.
16 Sur l'existence d' un fixateur dans l'organisme de l'animal jouissant de l'immunité naturelle. P. Zabolotnoff.
17 Isolement de la zymase. Revue critique. P. Mazé.

2. **Mode of Action of Antistreptococcus Serum.**—See THE JOURNAL, xliii, page 1975.

8. **Hot Horse Serum in Abdominal Surgery.**—See THE JOURNAL, xliii, page 1731.

12. **Pathology of Gout.**—Van Loghem corroborates the assumption that uric acid readily dissolves in the body fluids, and that sodium urate is precipitated in the body fluids when they contain a large proportion of uric acid. This precipitation of the crystals of sodium urate does not occur in normal tissues. The urate crystals may be taken up and carried away by the phagocytes. They are identical with the crystals found in the tophi of gout. These findings explain the attacks of gout that follow traumatism. The latter causes an exudation, that is, an accumulation of fluid containing large quantities of uric acid. The precipitation of the urate crystals causes the pain. The attacks that follow the grippe are explainable in the same way. It may be possible to study the therapeutic action of drugs by introducing sodium urate crystals into the body in collodion sacs, thus protecting them against the phagocytes.

13. **Purification of Waters Draining from Factories, etc.**—Calmette affirms that the problem of purifying the residual waters draining from sugar refineries and starch factories has at last been solved. The water is passed through three beds of aërobic bacteria. When it emerges, at the end of six hours, it does not putrefy and it is not injurious to fish. The city of Lille has placed every facility at his disposal for studying the biologic, chemic and chemicobacterial methods of purifying residual waters. He is now making a special study of the waters draining from each of the principal industries of the region, adapting the measures to the special conditions in each, as he relates in detail.

Bulletin de l'Académie de Médecine, Paris.

18 (LXVIII, No. 40, December 6.) Metal Tape Tourniquet.—Appareil hémostatique stérilisable. Lhomme.
19 *L'hyposthénie cardio-vasculaire de la menopause. Pawinski.
20 Prophylaxie de la maladie hydatique. F. Dévé (Rouen).
21 *Sur les ferments métalliques, leur action sur le métabolisme, leurs effets dans la pneumonie. A. Robin (Paris).

19. **Weakness of Vascular System During the Menopause.**—Pawinski has observed a number of cases of women, previously healthy, who during the menopause presented symptoms of cardiovascular hyposthenia, accompanied by nervous disturbances and predisposition to muscular fatigue. Bradycardia is more frequent than tachycardia, and the blood pressure is frequently much reduced. He attributes the trouble to ovarian insufficiency. Treatment should be along the lines of tonic and pressure-raising measures. The prognosis is favorable. The symptoms subside in a few weeks or months.

21. **Action of Metal Ferments on Metabolism and in Pneumonia.**—Robin announces that a solution of a metal, in a proportion of .00009 to .0002 gm. to the cubic centimeter, has a most remarkable action when injected subcutaneously. It displays a physiologic action like that of a true ferment, out of all proportion to the minute amount of the metal employed. The amount of urea may be increased by 30 per cent., in consequence, while there is liable to be a copious discharge of indoxyl in the urine and the uric acid may triple its former figure. The respiratory quotient is increased and the blood pressure transiently raised. The injection is followed also by leucocytosis. As certain of the vital processes are thus stimulated by these metal ferments, as he calls these extremely weak solutions of metals, he has tried to utilize them in the clinic. In pneumonia the phenomena observed during the crisis resemble those that follow injection of the metal ferment. In 14 cases of pneumonia an injection of from 5 to 10 c.c. of the metal solution hastened the crisis, the temperature dropping to normal before the seventh day, but the physical signs were not apparently modified. The metal ferments evidently stimulate the reaction of the organism, re-enforcing the natural resisting powers and superposing on the vital and personal reactions a parallel activity revealed by the more rapid disappearance of the correlative symptoms of the infection. He has treated 15 cases of pneumonia with antidiphtheria serum, normal horse serum, lactoserum or with yeast extracts, and their action seemed to be along the same lines as that of the metal ferments. He regards it as probable that the effect of these serums and of the metal ferments is practically identical. The latter may possibly substitute the former when more is learned in regard to their physical phenomena and biologic action. The therapeutic use of the metal ferments is an attempt to apply in the clinic the new data furnished by physics and chemistry in the last few years in regard to radioactivity, ionization and atomic energy, diastases, zymases, minutely divided metals and catalytic phenomena. The solutions are obtained by passing a small electric arc between metal electrodes submerged in distilled water. The metal passes into the fluid in the proportion of .09 to .2 mm. of the metal used to each c.c. of the fluid. A solution thus made displays a number of the reactions supposed to be peculiar to the organic diastases, and these reactions can be accelerated or inhibited by agents capable of influencing the diastases in the same way. The kind of metal used—silver, gold or platinum—did not seem to make any difference in regard to the results. He suggests that the effect may be due to a condition of the metal atoms similar to that noted in the vacuum of the metal atoms similar to that noted in the vacuum of the Crookes tube, the so-called "radiant state," in which the atoms are separated to the extremest limits, liberated, autonomous in their activity and susceptible of developing more energy. This hypothesis may explain the vital action of arsenic and iodin found normally in the tissues and also the remarkable therapeutic efficiency of certain mineral waters.

L'Obstétrique, Paris.

Last indexed XLII, page 228.

22 (IX, No. 4, July.) De l'allaitement au sein par les ouvrières d' usines, de fabriques, de manufactures (breast nursing by women employed). P. Bucin.
23 Experiences with Nursling Consultations.—Six années de pratique d' une consultation hospitalière de nourrissons. C. Maygrier.
24 Ibid.—La consultation de nourrissons de l'hopital Tenon en 1903. Boissard.
25 De la flore microbienne de la bouche du nourrisson (flora of nursling's mouth). C. Jeannin.
26 (No. 5.) Le placenta au cours de l'infection syphilitique. C. Néils.
27 Sur la pathogénie des paralysies obstétricales. J. Thoyer-Rozat.
28 *Lead Poisoning During Pregnancy.—Intoxication saturnine au cours de la grossesse. R. Lefour.

29 Le plasmode dans le placenta normal. B. et Nattan-Larrier.
30 Des hémorrhagies consécutives à l'expulsion de foetus volumineux. P. Guéniot and L. M. Pierra.
31 (No. 6.) *Diagnostic de la rupture du sinus circulaire pendant le travail (rupture during labor). C. Maygrier.
32 Le petit bassin (small pelvis). L. Demelin.
33 Les déchirures complètes du perinée; périnéorraphie immédiate et périnéorraphie secondaire précoce (lacerations and suture). Plauchu.

28. **Lead Poisoning from Wall Paper During Pregnancy.**—The puzzling case described has already been mentioned in the news columns of THE JOURNAL. Lefour comments on it to the effect that we are all living in an atmosphere of lead. The danger from this source in paint has been recognized, but now we have to contend with lead poisoning from wall papers. In 11 samples of papers obtained from different merchants 9 had a basis of lead and 2 of copper. He found 1.2 gm. of lead to the square meter in the paper which contained the least, and 7.68 gm. in the one that held the largest proportion of lead. The latter paper was of the class called velvet paper. Plush papers are probably still more dangerous, as they are constantly shedding a fine dust. In the case described, lead poisoning from the new wall papers was unmistakably the cause of the illness of the parents, of the death of the fetus in the first pregnancy, and of the premature delivery, with great debility of the fetus, in the second.

31. **Rupture of Circular Sinus During Labor.**—In 6 typical cases reported, 3 of the patients were i-paræ; the presentation was always of the vertex, while the children were rather under-sized. The hemorrhage was characteristic. As the uterus contracts, blood is forced out from the ruptured sinus and flows freely, but almost immediately the pressure of the head on the soft parts arrests the bleeding. As soon as the contraction is relaxed, the pressure of the head ceases and blood flows anew. The hemorrhage in one case kept up thus for forty-five minutes, during the entire period of expulsion. If there is no engagement, the hemorrhage is continuous.

Semaine Médicale, Paris.

Last indexed XLIII, page 2053.

34 (XXIV, No. 49, December 7.) *Ether versus Chloroform.—De l'éther ou du chloroforme, quel est, d' après les recherches expérimentales, le moins dangereux? A. Jaquet.
35 Bright Red and Dry Tongue Sign of Tropical Abscess of Liver.—La rougeur vive et sèche de la langue comme signe pathognomonique des abcès tropicaux du foie. H. de Brun.
36 *Fatal Hysteric Hemoptysis. M. N. Pende (Rome). Abstract.
37 (No. 50.) *Etude des localisations dans les noyaux bulboprotubérantiels (hypoglosse et facial) chez l'homme (in man). C. Parhon an d J. Papinian.
38 La valeur diagnostique de l'absence du réflexe aortique de percussion. E. Rondot. Abstract.
39 *Cure of Epilepsy by Ligature of the Superior Longitudinal Sinus. H. Delagénière (Mans). Abstract.

34. **Ether Versus Chloroform.**—This article presents the conclusions deduced from a careful study of the literature of the last decade, in addition to experimental and clinical research. The authors are convinced that chloroform depresses the heart, the respiration and the blood pressure, while ether, in the standard dosage, does not affect these functions. They add that nerve substance exposed to the fumes of chloroform is killed, while ether fumes induce only a transient paralysis. The safety zone is much wider with ether than with chloroform, and the former does not have such an injurious action as the latter on the parenchyma of the various organs when the narcosis is long protracted. The consensus of opinion seems to be that ether is consequently less dangerous than chloroform, and that the pulmonary complications sometimes observed consecutive to ether anesthesia are not so much the fault of the ether as of the anesthetist.

36. **Fatal Hysteric Hemoptysis.**—Pende's patient was an apparently healthy young woman who suddenly began to exhibit symptoms of phthisis after a domestic scene. She coughed much, with dyspnea, the sputa being blood-stained but free from mucus, elastic fibers and bacilli. The fifth dorsal vertebra was painful to pressure, and there was irregular temperature, but no physical signs of a lung affection, although hysteric stigmata were prominent. She improved under suggestion, but the tuberculin test, twice repeated, gave a positive response. Inoculation of guinea-pigs was always negative. She was dismissed apparently completely cured, but succumbed soon afterward to a fulminating hemoptysis. Not a trace of tuberculosis could be discovered at the necropsy.

37. **Localization of the Nuclei of the Hypoglossal and Facial Nerves.**—Parhon gives illustrations of the nerve findings in a case of cancer in the suprahyoid region, comparing the findings with the peripheral disturbances. The conclusions confirm the results of experimental research in regard to the localization of the nuclei of the hypoglossal and facial nerves, as he describes in detail.

39. **Treatment of Epilepsy by Ligation of Longitudinal Sinus.**—Delagénière reports that in operating on an epileptic of 54 the longitudinal sinus was accidentally injured and was tamponed to control the hemorrhage. The patient was freed at one stroke from his epileptic seizures and has had no recurrence during the two years since. The benefit derived suggests that the seizure may be the result of a permanent dilatation of the veins on the surface of the hemispheres, causing irritation of the cortex. If the circulation in the cortex could be modified, the epilepsy would be cured. Delagénière has acted on this assumption in another case since, applying a double ligature to the longitudinal sinus near its end. The technic is similar to that of ligation of the saphena for superficial varices. The results were almost as perfect as in the first case. The patient was a man of 23 who has had no seizures during the three months since the simple intervention, the particulars of which are described in detail.

Archiv f. klinische Chirurgie, Langenbeck's, Berlin.

Last indexed XLIII, page 1666.

40 (LXXIV, No. 4.) Beiträge zum Diabetes in der Chirurgie. W. Kausch.
41 Zur Verständigung in der Behandlung der akuten Perityphlitis. Sonnenburg.
42 Ueber doppelseitige Nierensteine (bilateral kidney stones). Treplin.
43 *Progenitur Thyreopriver. Lanz.
44 Beitrag zur Lehre vom Riesenwuchs (giant growth). M. Zondek.
45 Transplantation of Goiter.—Beitrag zur Kropfverlagerung. F. Steinmann.
46 Beitrag zur Beseitigung der technischen Schwierigkeiten bei subkutanen Paraffin-Prothesen. W. Krlin.
47 Ueber den Verschluss des Ductus choledochus durch Echinokokkenblasen und Heilung durch Choledochotomie nebst Radikaloperation. F. Sasse.
48 *Beiträge zur Bauch-Chirurgie (abdominal). J. Bakes.
49 Zwei Vorschläge zur Modifikation der Pyloroplastik. A. Narath.
50 *"Inoculation Cancers."—Gibt es "Impfkarzinome"? R. Milner. (Concluded.)

43. **Effect on Genital Sphere of Removal of the Thyroid.**—Lanz found that dogs, cats, goats and hens are usually unable to procreate after thyroidectomy. He has also observed the same effect in two human subjects. One was a man who was apparently deprived of all sexual functions by complete removal of the thyroid gland. Exhibition of thyroid extract, however, was followed by their gradual restoration. The other subject was a woman. The menses reappeared under thyroid treatment after they had been entirely suspended by thyroidectomy. This patient is unmarried. The other patient is married, but childless.

48. **Abdominal Surgery.**—Bakes mentions, among other experiences, that he has had three deaths for which he believes the scopolamin-morphin anesthesia was responsible. He has used this method of narcosis in 200 cases, but now discards it as uncertain and unreliable, except as an adjuvant for ether, for which it is very valuable, using minimal doses.

50. **"Inoculation Cancers."**—Milner does not regard any of the cases on record as conclusive in regard to the actual occurrence of cancer from inoculation during operations. The cancer cells may be attracted by way of the blood to the site of the wound, or the tissues may be injured by the cytotoxic fluids, etc. It has been found impossible to induce the development of cancer on intact epithelium by implantation of cancer cells, with the exception of the epithelium of the ovary. In every case reported of so-called "inoculation cancer" on any other epithelial surface it is impossible to exclude the possibility of retrograde metastasis or of multiplicity of the tumors. There is no positive observation on record of the unintentional

transmission of cancer from one individual to another of the same species. The prevailing fear of the contagiousness of cancer is probably exaggerated and unfounded, but at the same time none of the present prophylactic measures should be neglected. Further studies of these "inoculation cancers" may lead to interesting and important results. More than 200 articles were reviewed for this monograph, and the data are carefully analyzed and classified, with the above conclusions.

Beiträge z. klin. Chirurgie, von Bruns', Tübingen.

Last indexed XLIII, pages 1267 and 1587.

51 (XLII, No. 2.) Ueber Implantations-Recidive von Tumoren. R. Wilmanns.
52 Ueber die Glykogen-Reaktion des Blutes und ihre Verwertbarkeit bei chirurgischen Affektionen (of blood). Reich.
53 Zur Resektion der Harnblase wegen maligner Tumoren (of bladder). F. Mathias.
54 Vereiterung des persistierenden Urachus mit Durchbruch in die Blase und in die Bauchdecken (suppuration in urachus). Ibid.
55 Ueber Duodenotomie zur Entfernung von Gallensteinen (gallstones). G. Lefmann.
56 Zur Kasuistik des Darm-stenose nach Brucheinklemmung (after incarcerated hernia). B. Baisch.
57 Die Laparatomie im Dienst der Rectum-Exstirpation. H. Schloffer.
58 Ueber primäre Muskel-Angiome. O. Riethus.
59 Die Principien des Bruchpfortenschlusses bei Crural-Hernien unter Mitteilung einer neuen Methode v. Mikulicz. C. Goebel.
60 Behandlung der Carcinome mit Röntgen-Strahlen. O. Fittig.
61 Fall von Meckel'schen Divertikel ungewöhnlicher Art. L. Hendee (Ithaca).

Berliner klinische Wochenschrift.

62 (XLI, No. 50, December 12.) *Ueber Heilung und Latenz des Diabetes mellitus. H. Leo (Bonn).
63 Kann durch "Griserin" eine "innere Desinfection" bewirkt werden? Petruschky (Dantsic).
64 *Lead Poisoning of Eye.—Die chronische Vergiftung des Auges mit Blei. L. Lewin.
65 Physical Behavior of Solutions in Stomach.—Ueber das physik. Verhalten von Lösungen im menschlichen Magen. P. Sommerfeld and H. Roeder (Berlin).

62. **Cure or Latency of Diabetes.**—Leo analyzes the cases of diabetes which have been published as cured, and describes one personally observed. The patient was a man in the thirties, and he seemed to be entirely free from any trace of his diabetes for a number of months. Symptoms then reappeared, and the literature shows that this recurrence is not exceptional. Some writers assume that it is a new onset of diabetes, but Leo inclines to believe that the disease persists during the interval, although in an imperceptibly latent form. In examining for life insurance it is advisable to pay great attention to a history of diabetes, and persons who have once suffered from the disease should always refrain from overtaxing their carbohydrate-assimilating functions.

64. **Chronic Lead Poisoning of the Eye.**—Lewin has for years been making a study of industrial intoxications and has recently published a large work on their effect on the eyes. Lead poisoning has a particularly pernicious action on the eyes, ranging from transient blindness to atrophy of the optic nerve, from retinitis with albuminuria to paralysis or cramps of the ocular muscles and the corneal opacity noted in persons employed in making the salts of lead. Among 163 victims of lead poisoning with eye disturbances, 122 were men and 41 women, the majority of the women being under 20, while the largest proportion of the men was between 30 and 40. In 36 cases which terminated in atrophy of the optic nerve, 19 of the subjects were women and 17 men. In 167 cases in which the eye symptoms were accompanied by other evidences of the lead poisoning, colic was noted in 79, vertigo in 11, headache in 52, cramps or coma in 47, paralysis in 27, arthralgia in 18 and deafness in 6. In 114 cases of lead affections of the eye, a cure was realized in 40, 22 were improved, 36 terminated in atrophy of the optic nerve, and 16 in death. He classifies 130 cases of these lead ocular affections according to the occupation, a list of 30 trades. One case was traced to wrapping chocolate in metal foil wrappers. There is a long stretch, he remarks, between the disturbances in the eye which could be revealed by ophthalmoscopic examination and those which the subject himself first notices. One eye may be seriously compromised before the patient realizes that anything is wrong. In 127 cases in which the onset was noted, the eye affection developed gradually in 84 and acutely in 43. In 100 persons employed in the vulcanization of rubber, 34 were cured, 25 improved, but 20 were unimproved. Lewin adds that scientific study of industrial intoxications generally has to contend with obstacles purposely thrown in the way by the proprietors.

Deutsche Zeitschrift f. Chirurgie, Leipsic.

Last indexed XLIII, page 1827.

66 (LXXIV, Nos. 3-4.) *Zur Behandlung des eingeklemmten Bruches (incarcerated hernia). Lessing.
67 Der Epiphysenbruch des Femur im Kniegelenke (fracture at knee). Reismann.
68 *Ueber Enterostomie bei Darmverschluss durch Peritonitis (ileus). Busch.
69 *Ueber Extremitäten-Gangrän im jugendlichen Alter nach Infektions-Krankheiten. Barraud.
70 Zur Diagnose der Pankreas-Erkrankungen. A. Neumann.
71 *Ein Weg zum vesikalen Ureteren-Ende beim Manne. A. Neumann.
72 Ueber Narkosen mit dem Roth-Dragerschen Sauerstoff-Chloroform-Narkosen-Apparat. Oertel.
73 Ueber Situs viscerum inversus. Riechelmann.
74 Stiel-Torsion eines soliden Ovarial-Tumors; schwere peritoneale Reizung. Extirpation. Heilung. Nadler.
75 *Die Behandlung der Hydrocele nach einem neuen Verfahren. Klapp.
76 (Nos. 5-6.) Exstirpation eines grossen Myxo-Fibro-Lipoms der Milz-Ligamente mit gleichzeitiger Exstirpation der Milz (of spleen). H. v. Burckhardt.
77 Fall von ungewöhnlich grossen sekundären Lebertumor bei atypischem Schilddrüsenkarzinom (tumor in liver with thyroid cancer). Labhardt und Saltykow.
78 *Surgical Treatment of Epilepsy.—Beiträge zur Hirn-Chirurgie. A. Nast-Kolb.
79 Hemorrhage from Stasis After Contusion of Trunk.—Weiterer Beitrag zur Kenntnis der Stauungsblutungen nach Rumpfkompression. H. Braun.
80 Osteoplastischer Verschluss einer Hernia obturatoria nach dreimaliger Einklemmung im Foramen obturatorium sinistrum. M. Schwarzschild.
81 Myositis ossificans traumatica mit spontanem Zurückgang der Muskelverknocherungen. R. Nadler.
82 Is Toxicity of Cocain Reduced by Adrenalin?—Wird die Giftigkeit des Kokain durch Kombination mit Adrenalin herabgesetzt? J. Thies.
83 Beitrag zu den Affektionen, namentlich der Tuberkulose, der Schleimbeutel in der Beckenhüftgegend (in bursæ of hip). J. Wieting.
84 Beitrag zur Lehre von der chronischen ankylosierenden Entzündung der Wirbelsäule (of spine). D. G. Zesas.
85 Zur Frage der operativen Behandlung der Tuberkulose der grossen Gelenke der Extremitäten und speziell der Resektion derselben (large joints). N. Wolkowitsch.
86 Ein Beitrag zur temporären Aufklappung beider Oberkiefer nach Kocher (turning back the jaw). Enderlen.
87 Experimentelle Untersuchungen über die Durchgängigkeit des Darmes für Bakterien (permeability of intestine). A. Helmberger und A. Martina.
88 Zur Kasuistik und Histologie der kavernösen Muskel-Angiome. K. Keller.
89 Ueber Luxatio pedis sub talo nach vorne mit Talus-Fraktur. E. Deetz.
90 Beitrag zur Lehre von dem Adamantinom. M. Matsuoka.

66. **Incarcerated Hernia.**—Lessing reviews the 165 cases of incarcerated hernia treated at the Königsberg clinic between 1896 and 1903. The majority of the 40 cases of gangrene occurred with femoral hernia.

68. **Enterostomy in Prevention of Ileus.**—Busch advocates prompt enterostomy in case of peritonitis as a means of preventing closure of the bowels from the action of the inflammation around. He reports 2 cases in which ileus due to the action of the existing peritonitis was relieved by immediate enterostomy. In one case an opening was made three times and in the other twice. He emphasizes the great importance of free evacuation of the intestines in every case of peritonitis, without waiting for the suppuration or sepsis to assume large proportions.

69. **Gangrene in the Young.**—Barraud's patient was a young woman whose finger was injured and became red and swollen, but without suppuration. A gland in the axilla also became enlarged and painful. Six weeks later fever developed, with pains in the joints and later in the leg of the opposite side, with gangrene and death. Staphylococci were found in the swollen gland, but not in the white thrombus which plugged the iliac, femoral and hypogastric arteries.

71. **Ureteral Abscess Opened Through the Perineum.**—Neumann describes a case in which he evacuated an abscess at the vesical end of the ureter by way of the perineum.

75. **Treatment of Hydrocele.**—Klapp slits the sac and sutures the tunica vaginalis propria.

78. **Surgery of the Brain.**—The three cases of epilepsy reported were characterized by the traumatic etiology, the com-

mencement of the spasms in a certain part of the body and the absolute failure of all medical measures. The motor region was exposed by a Wagner bone flap in all three. In the first case five small cysts were discovered, and the patient soon succumbed to meningitis which developed after a prolapse of the brain. In the second case the center involved in the spasmodic turning of the head was determined by faradization and excised, the resected portion measuring 6 x 9 x 11 mm. The patient remained cured for six months, but then showed symptoms of recurrence. The brain was trephined again, and this time the patient remained free from symptoms for seven months. In the third (quite recent) case a fibroma was found in the falx cerebri. It was extirpated with good results to date. Reviewing the literature on the subject of the surgical treatment of epilepsy, Nast finds 84 cases recorded since 1889. Of this number 28 were not benefited by the intervention, but 25 were cured for at least a year, and 20 for a period less than a year. Six were improved and five died. Fourteen of the recoveries were in the 35 cases of traumatic Jacksonian epilepsy, and 8 recoveries in the 35 non-traumatic cases. Horsley excision of the cortex was done in 14 instances, with 5 recoveries. The cured cases have been under observation for from three to twelve years. The center involved was determined by electric tests in 11 cases. Only 3 of the 15 cases of general epilepsy were cured, and 13 of the 15 were of traumatic origin.

Monatsschrift f. Geb. und Gynäkologie, Berlin.

Last indexed XLIII, page 1828.

91 (XX, No. 3, September.) Ueber Phlebektasien des graviden Uterus und ihre klinische Bedeutung. J. Halban.
92 Ueber die Anwendung der Kopfzange bei Beckenendlage (forceps in pelvic presentation). R. Müllerheim.
93 Incarceration cystisch degenerierter Ovarien bei Blasenmole (with vesicular mole). G. Bamberg.
94 *Relations Between Nasopharynx and Genitalia.—Die Veränderungen des Nasenrachenraums bei Schwangeren, Gebärenden und Wochnerinnen. H. W. Freund (Strasburg).

94. Connection Between Nose, Throat and Genitalia.—Freund's later researches have confirmed his announcements in respect to the relations between the female sexual organs and the nose. In 66 out of 100 pregnant women he found hyperemia of the throat and hypertrophy of the turbinals, generally of the lower. These findings persisted throughout the pregnancy and were accompanied by epistaxis in 25 per cent. During the birth act the turbinals swell and induce reflex phenomena in the respiratory organs. These changes in the nose persist during the lying-in period without being influenced by nursing. Hypertrophied turbinals in contact may induce hyperemesis. Congestion and enlargement occur in the throat also, but much less pronounced, and generally only in the tonsils.

Zeitschrift f. Geb. und Gynäkologie, Stuttgart.

Last indexed XLIII, page 1859.

95 (LIII, No. 1.) Tubar Gravidität bei gleichzeitig bestehender akuter eitriger Entzündung der Tube. F. Hitschmann.
96 Die Deportation der Zotten und ihre Bedeutung (villi). Ibid.
97 *Ueber die Ovarial Veränderungen bei Blasenmole und bei normaler Gravidität (changes in ovaries). J. Wallart.
98 *Ueber die Diagnose des malignen Chorionepithelioms nach Blasenmole nebst Mittellung eines neuen Falles. R. Krukenberg.
99 Ueber Embryoma tubæ. E. G. Orthmann.
100 Ueber Adenomyoma uteri. J. G. V. Meyer.
101 Eine seltene Form des Cervix-Myoms. P. Zacharias.

97-98. Vesicular Mole.—Wallart describes the findings in the ovaries in cases of vesicular mole and also during pregnancies, relating the particulars of a case in which a tumor developed after expulsion of a vesicular mole. In eight months metastases had developed in the lungs and in the vagina. Histologically it suggested a large-celled, blood-filled sarcoma. He classifies it as an atypical, malignant chorioepithelioma. Krukenberg also reports another atypical case. He advises prompt extirpation in dubious cases, without waiting for the uncertain findings of histologic examination.

Revista de Medicina y Cirugia, Havana.

Last indexed XLII, page 690.

102 (VIII, No. 11.) *Nuevo metodo de sutura en la operacion de la cura radical de la hernia inguinal. F. D. Roldan.
103 (No. 12.) Profilaxia de la fiebre amarilla (yellow fever). J. Santos Fernandez, G. Lopez and C. Delgado.
104 (No. 15.) Algo sobre el diagnostico de la diabetes sacarina. J. F. Arteaga.
105 *Complicaciones y tratamiento de las fracturas del maxilar inferior. F. D. Roldan.
106 (No. 16.) Nuevas observaciones de intervencion quirurgica en casos de litiasis biliar. J. A. Presno y Bastiony.
107 (No. 17.) Las corrientes galvanicas y faradicas en el tratamiento de la neurastenia. R. O. Vento.
108 (No. 18.) Algunos detalles sobre la anatomia de los dedos y desarticulacion de las falanges. F. D. Roldan.
109 (No. 19.) Contribucion al estudio de la atrofia infantil. Aparato digestivo y sus anexos en el atrofico. A. A. Aballi. (Commenced in No. 17.)
110 (No. 20.) Antagonismo entre la estricnina y la quinine. A. V. Dapena.
111 (No. 21.) Epiplectomia y hernias del gran epiploon (omentum). F. D. Roldan.
112 (No. 22.) Hosts of Protozoa.—Huespedes de infeccion protozoarica. M. G. Lebredo. (Commenced in No. 21.)
113 (Nos. 23-24.) Tuberculosis pulmonar. Estudio sobre localizacion, diagnostico precoz e intoxicacion. C. M. Desvernine.
114 (IX, No. 1.) La plata coloidal (colloid silver). J. A. Taboedela.
115 (No. 2.) Suturas intestinales. F. D. Roldan.
116 Anatomia topografica del recto (rectum). A. G. Casariego.
117 (No. 4.) *Modificacion de la "Dermo" lampara y aplicacion de los rayos Finsen en el diagnostico y tratamiento del hidrocele. F. D. Roldan.
118 (No. 5.) Anatomia topografica de la S iliaca. O. Solis.
119 *Nota sobre el tratamiento del queloide por las inyecciones de tiosinamina. J. A. Presno y Bastiony.

102. Roldan's Method of Treating Inguinal Hernia.—In a typical case described, bilateral inguinal hernia had recurred on both sides. Roldan shows in five full-page illustrations the technic of his method, which does away with a separate suture thread for ligating the sac. The latter is included in the suture of the lower tier. He uses three silk sutures, all passed through a short piece of a drain, tied together in such a way that they will not pull out of the drain. The threads are then threaded in turn in a Reverdin needle and passed through and under the skin to a point 2 cm. from the upper corner of the wound, where they emerge. With one of the threads the lower tier is reconstructed, the needle being passed back and forth through the neck of the sac, as well as through the muscles. The sac is then resected and the tiers above sutured with the other threads, and the ends passed separately through another piece of drain. He never operates if the patient has the slightest catarrhal symptoms in the air passages. He removes the threads in from two to three weeks and has his patients wear a truss, with slight pressure, for six months at most.

105. Treatment of Fractures of the Lower Jaw.—The same author gives a number of illustrations to show the plaster bandage he applies in case of a fractured jaw and also the excellent results in 3 cases. The band passes across the jaw below the mouth, is then crossed at the base of the hair and is crossed again just in front of the vertex. One end is brought down over the cheek to below the chin and the other end over the other cheek, over the shorter end, and over the top of the head again and down to below the chin on the other side. The portion of the bandage where the strips cross at the base of the hair is then cut out and the two sides laced together. A cast thus made holds the jaw immovable while allowing free use of the mouth. It does not encroach on the face beyond the middle of the cheeks.

117. Modified Finsen Treatment of Hydrocele.—Roldan has devised a cooling ring to use with the Dermo lamp. It not only prevents the heating of the apparatus, but it also serves to absorb the heat rays. Applied in the treatment of hydrocele, he found that the lesion subsided entirely during the month after two 8-minute applications of the lamp. The hydrocele always shows transparent in the light of the lamp. The amount of fluid in the case described was from about 60 to 80 gm. The patient was a young man of 17, and his usual occupations were not interfered with in any way, nor were any inconveniences noted from the treatment. The application of the light *per se* is always indolent.

119. Thiosinamin Treatment of Keloid.—Presno relates that a rebellious, recurring keloid was cured by four injections of a 15 per cent. glycerin solution of thiosinamin. The lesion was on the back of the neck and had resisted all kinds of chemical cauterization. The injections were made every third day directly into the tumor which had developed subsequently to acne.